THE PROPERTY OF
WAITSTILL R. RANNEY, M. D.

SKETCHES

OF

EPIDEMIC DISEASES

IN THE

STATE OF VERMONT;

FROM ITS FIRST SETTLEMENT TO THE YEAR 1815. WITH A CONSIDERATION OF THEIR CAUSES, PHENOMENA, AND TREATMENT.

TO WHICH IS ADDED

REMARKS ON PULMONARY CONSUMPTION.

BY JOSEPH A. GALLUP, M. D.

"Trace their slight bands, their secret haunts betray."— ZOONOMIA.

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1815.

DISTRICT OF VERMONT, TO WIT:

BE it remembered, That on the sixteenth day of May, in the thirty-ninth year [L.S.] of the Independence of the United States of America, Joseph A. Gallup, of the said district, hath deposited in this office the title of a book, the right whereof he claims as author, in the words following, to wit:

"Sketches of Epidemic Diseases in the State of Vermont, from its first settlement to the year 1815; with a consideration of their causes, phenomena, and treatment. To which is added, remarks on Pulmonary Consumption. By Joseph A. Gallup, M. D. 'Trace their slight bands, their secret haunts betray.' Zoonomia."

In conformity to the act of the Congress of the United States, entitled "An act for the encouragement of learning, by securing the copies of Maps, Charts, and Books, to the authors and proprietors of such copies, during the times therein mentioned."

JESSE GOVE,
Clerk of the District of Vermont.

A true copy of record, examined and sealed, by
J. GOVE, Clerk.

With salutations of respect, the following Sketches are inscribed to the Members composing the different Medical Societies in the State of Vermont, and with sincere wishes for their personal prosperity, and the common improvement of medical science.

By their most obedient

And very humble servant,

THE AUTHOR.

ERRATA.*

Page 76, 11th line from top. The quotation from Dr. Littlefield should include two lines more below, or to the next period.

P. 102, 7th line from bottom, *by* our atmosphere, read *in* our atmosphere.

P. 150, last line of note, *tetatnus*, read *tetanus*.

P. 152, last line of the text, *flaccid* countenance, read *placid* countenance.

P. 165, 15th line from top, *venal* glands, read *renal* glands.

P. 221, 7th line from bottom, *even* seen, read *ever* seen.

P. 250, 12th line from bottom, It is our lot, read, *If* it is our lot.

P. 255, 6th line from top, *dispersed*, read *dispensed*.

P. 293, 1st line, *takes* place read *take* place.

P. 326, 6th line from bottom, *my* particular regimen, read *any* particular regimen.

P. 328, 5th line from top, *canrorum*, read *cancrorum*.

P. 374, 12th line from top, *jalap*, read *julap*.

* All errours of the transcriber, except the word *even* for *ever*, which is an errour of the press.

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PRELIMINARY.

Should some fastidious critic demand an apology of an obscure individual, for publicly approaching the important subjects of the following sheets, he may receive for answer; first, because nothing is more needed; and secondly, because the subject has been neglected by those better qualified.

The writer has long been fully impressed with a conviction of the necessity of some system on epidemic diseases, which would exhibit, in a short and conspicuous view, their theory, and help to harmonize the vague and adverse practices, discoverable throughout the country, originating from a too successful promulgation of absurd and visionary theories, not conducive to practical utility. But that this task should devolve upon him, was not contemplated until the autumn of 1813; when making a journey to Philadelphia, he discovered much anxiety among the gentlemen of the faculty in that quarter, to obtain more particular information respecting the late northern epidemics. It was their right to expect, and the privilege of the world to receive, at least, the historical part. The chief regret of the author is, that the attempt is not rendered more complete.

Epidemic fevers, and their sequelæ, occupy a very large portion of the catalogue of human maladies. No section of the globe is exempt from their ravages, and no society of individuals has been excused from weeds of mourning by the devastation of these scourges of man. They follow wherever the footsteps of man lead the way, and his traces are bestrewed with monumental inscriptions of human frailty. The temperate and invigorating climate of New England is not a barrier to their progress, and even the "hill country" of Vermont has experienced the wasting pestilence in some of its most gigantic forms.

Whilst means are appointed for the restoration of health in sickness, as well as for the preservation of life in health, a retrospective view is accompanied with regret, that no greater progress has been made by the *guardians* of health, than the sable records of history exhibit.

From a sense of delicacy and candour to others, and a too thorough acquaintance with his own imperfections, the writer would refrain from dilating upon the discordant opinions of some, and incongruous practices of others, not only in this region, but wherever the name of physician has been echoed. So much has this been the case, that public confidence has been impaired, and the reproachful epithet of "*conjectural art*" has been applied to that *science*, which the fathers of medicine declared to be *divine*.

Some of popular fame, but of mutable opinions, after partially trying various methods of treatment, have said, that it makes but little difference in the event, what

method is pursued; thereby confounding right with wrong, correctness with errour, and truth with falsehood. The functions of animal life in health and sickness, are governed by laws, although of a different kind, yet as immutable as the affinities of inert matter. The unexpected and unintelligible phenomena of living bodies in disease, arise not from the capricious freaks of nature, but have an origin in mental and corporeal influences, with as much correctness, as ponderous bodies are subjected to the laws of gravitation.

If these positions are true, the too much neglected science of physiology* appears, in the majesty of its dignity, to assert its station in the first rank of medical acquirements. However useful a knowledge of chemistry, materia medica, anatomy, and other elementary studies, may be to the medical student, yet without a knowledge of physiology, he is no better prepared to practice medicine, than the artist who framed the instrument, would be to harmonize melodious symphonies, who had never taught his fingers to dance on the keys of a piano forte.

He who practices without these superior acquirements, can be nothing but a servile imitator, and puts himself upon a level with the veterinary scrubber, or the garrulous patentee; alike ignorant of his catholicon as of the character of the disease, he still expects some wonderful

* By this is meant, not only the physiology of nature, but the physiology of experience and observation.

CORVISART.

specific effect from his sovereign mercurial, or his imperial opiate.

Physicians, like all other characters, are liable to vibrate from one extreme to the other, and may sometimes be led by fashion. We see the Sydenhamic practice, which was instituted for the cure of sthenic eruptive diseases, gain the ascendency. So effectually had it obtained, that, notwithstanding our country has long been infested with fevers of internal irritation, and external debility, the revival of the sweating and alexipharmic treatment in spotted fever was left to a heroine in medicine, Mrs. Hurlbert. This was not peculiar to the place where she resided. It was a very common practice to advise cool applications to the surface in typhus fever, dysentery, &c. for a long period before the spotted fever visited this country, and is still persisted in by many. As in popular assemblies, a few characters direct the destinies of an empire; so in medicine, a select influential few prescribe for a nation.

On the other hand, the alexipharmic treatment, in opposition to the refrigerant plan, was really useful in certain states of the system, called malignant; meaning those conditions of fever, where the responding action of the system with great difficulty obtains upon the surface of the body and extremities, attended with appearances of debility, and which are marks of the highest grade of diseased impressions. Being found useful in this condition, under certain circumstances, it was often used indiscriminately, and without proper auxiliaries; and, from the circumstance of its injudicious application, lost its

reputation, and has been long neglected in this country, until revived in the late petechial fever. The scene has been reacted here that was acted in the days of Morton and Sydenham in the city of London.

Were it left to the writer to decide, he would be at a loss to determine which of these two great divisions, that chiefly compose the medical world, merits the greatest censure: the one, for extending the refrigerating practice beyond its natural limits, to diseases of extreme torpor of the surface, and *without discrimination*;—and the other for carrying the stimulating and sweating practice to excess, whilst neglecting auxiliaries, also *without discrimination*.

A work that would combine the advantages of these diverse theories, connected with practical and physiological illustrations, and thus establish a rational method of treatment, must be considered a valuable acquisition to the inexperienced practitioner. Whether such a system has ever been published is unknown to the writer; but of this he is assured, that no such has ever come to his knowledge. How far the following brief sketches will answer these purposes, and the promotion of useful information, must be submitted to the decision of a candid public.

To bring the subject fairly into view, a method was settled upon, which at present is most satisfactory to the author, and which it is hoped will gain the approbation of the reader. It has been inculcated by the great models of the science, that every treatise on epidemic diseases should be preceded by a topographical sketch of

the country wherein they have prevailed. This cannot be so interesting to the inhabitants of the state described as to others.

A condensed view of the periods and importance of past diseases, must be acceptable to the present generation, and a precious relic for posterity.

In chapter iii. will be found a collected epitome of the most valuable opinions of modern physicians on the causes of fever, with the author's peculiar views and illustrations. If any should be dissatisfied with these, he will be at liberty to do more justice to the subject.

In chapter iv. is an unfinished attempt to explain, in a very obvious and familiar manner, some of the phenomena of fever. This subject has always, and justly, been considered very difficult; some latitude may therefore be given the writer, especially when it is considered, his object is more to practical improvement, than a meddling with physiological entanglements, or an adoption of that kind of phraseology, which is often misunderstood by the best classic scholars.

In chapter v. by putting the diagnosis and treatment of fever in a new point of view, marking the various grades of fatal tendency, and turning the attention particularly to the sequelæ of fever, it is hoped the approbation of the reader will be gained after a patient perusal.

Chapters vi. vii. viii. ix. and x. on particular diseases, are offered the reader without any further comment, than that if he could have treated them to his satisfaction by following the fashionable prescriptions of the day, he would not have offered his own views on the subject. It

is hoped here and every where else, it will be understood, that if any severity should be discovered, it is intended to be applied to principles, and not to characters.

The remarks on consumption are respectfully offered for the consideration of the discriminating physician. A summary conclusion is offered of those investigations, which were excited by an evident constitutional propensity to the disease in himself, and the loss of several of his nearest connexions by it, under the common regimen. Perhaps the theoretical part may appear rather novel, and seem to merit criticism; but the author will always find consolation in looking at the motto at the head of the chapter, and particularly, as it will revive the recollection of the worthy character who penned it.

The writings of others, and particularly certain American publications on epidemic diseases, are duly appreciated and acknowledged to be of great merit. Many of these have been perused with much interest; and have been of service in encouraging the writer in the use of energetic applications, to arrest the progress of disease, which otherwise, oftentimes, might have a sudden and unfavourable termination.—But those systems and practices, which savour so much of the obsequious, imitative, and temporizing methods, as to suffer almost every case to be protracted to an unnecessary length, and dubious termination, are held in disapprobation.

It will be noticed, that more attention is bestowed upon general principles in the work, than upon the minutiæ of practical applications. A single volume is not sufficient

to answer the former design, and admit great variety in the methodus medendi. The discretion of the reader can add or alter particular remedies to suit his own judgment, in conformity to general principles. Also the quantities of remedies are almost wholly left out. The design of this must be obvious. If the student has not learned these, he may find them in the proper books. And further, as in every instance, the quantities of remedies should be regulated by the quantity of excitement in the diseased system, so the force of the former should be levelled in such a manner as to suit the exigencies of the latter.

With the same view, the quantity of blood that might be lost is rarely mentioned; but rather, the number of repetitions. A full bleeding is considered to be such a quantity, as makes some sensible change in the action of the heart and arteries, and the number will depend on the obstinacy of the disease, and frequency of recurrence of that state, which first required this operation.

It will be further noticed, that very little addition is made to the numerous recipes of heterogeneous mixture already extant. When the primary and preternatural changes in the system, constituting disease, are traced to their origin, and deprived of collateral and secondary consequences, they appear very simple; they may be met with very simple remedies. But if every symptom is to be combated by some specific drug, the Theriaca of Andromicus will not contain enough.

If it should be objected, that too great sameness and simplicity of applications are apparent; it will be answer-

ed, that the necessity of the subject compels to it; and it is agreeable to the design to disrobe the therapeutical as well as the theoretical part of complication and mystery. As in religion, the far-fetched and fine spun web of metaphysical dogmas are often neither understood, nor consoling to the weary and heavy laden; and as in jurisprudence, the complexity attached to rights and wrongs, often strains the cords of justice to oppression; so the multifarious and contra prescriptions of the physician may become too burdensome to a patient already tottering under the weight of disease.

The copiousness of the design, and the limited condition of the work, have precluded an opportunity of introducing the testimony of respectable authors, in certain instances, and the opportunity of illustrating certain propositions by facts and argument, and also that of opposing others. Simplicity, perspicuity, and brevity, are chiefly aimed at. But some apprehension is entertained, that the laconic style, in some places, might possibly leave the subject without sufficient explanation.

Most of the subjects treated of must be considered as difficult, and accustomed to be controverted. Some lenity will be granted, when it is considered, that for want of sufficient evidence, some opinions advanced must be more or less speculative. The author, therefore, will not be considered as chargeable any further, than for his own opinion and for matters of fact. Whenever evidence shall be adduced to warrant a change of the former, or correction of the latter, he will consider it his highest privilege to conform thereto.

But little methodical arrangement has been attempted, and subjects are treated with freedom, as they occurred whilst writing. What is now advanced, may rather be considered a skeleton, or *sketches* of a system, which possibly hereafter, if fostered by the care and friendly influences of genius and observation, may grow into a system highly useful.

In the first period of practice, after traversing the paths of disappointment, the writer imbibed a disrelish for books, and laid them mostly aside for several years. Probably this might have diminished the scientific improvement which otherwise might have been made. But still the belief remains, that, by some dissections, an unceasing attention to the phenomena of disease, and the varied action of the diseased system under the operation of remedies, a familiar acquaintance was obtained with those of more importance in a practical point of view, than would have been acquired by any laborious research of the records of antiquity, or the numerous speculations of modern times.

The writer will not challenge originality; but he hopes independence of thinking will not be denied him. Many of the sentiments advanced are in strict conformity to authors of the first respectability. As the writer is more in the habit of thinking than reading, he is at a loss as to some particular sentiments, whether he had ever seen them advanced by others, or whether they were the result of his own reflections. Some of them, however, he is confident, he never knew advanced by others.

The design of the work was not planned nor begun until May last; and for a considerable time, much hesi-

tation remained as to the propriety and expediency of "venturing on that sea of troubles, which none but authors know." At length duty prevailed over ease, and the hope of being useful, over the dreaded sickness of chagrin and disappointment. The subject is copious; it is prolific; much remains to be done. It must be given to the press as it is, or wholly suppressed.

It is said a book once published is *irrevocable*. The writer will not complain; but, the short term of nine months, and not half of it spent in the work; the frequent interruptions occasioned by practical avocations; a multiplicity of domestic concerns; a time when political difficulties agitate the minds of most people; writing within sound of a military rendezvous; and lastly, the embarrassments connected with frequent interruptions of health, might, on any other occasion, serve as apologies. But none will be made; nor can any be received on subjects like these. Nothing but honest candour can be expected in necessary criticism. If in the collision of opinion, truth should be elicited, the writer will enjoy the satisfaction, of not having lived in vain.

Woodstock, Vermont, February, 1815.

CHAPTER I.

CONCISE TOPOGRAPHY OF THE STATE OF VERMONT.

In the first design of the work, it was contemplated to exhibit a topographical view of the state, which perhaps might have been in a measure complete and satisfactory. This subject was delayed until the last; and two reasons compel a relinquishment of the plan in part. The first is, neglect of obtaining particular information; but principally, that the work is already extended beyond its prescribed limits. A very cursory and superficial view will only be attempted.

The territory is situated, between 42 degrees 45 min. and 45 deg. north latitude; and 3 deg. 45 min. and 5 deg. 25 min. east longitude from Washington.

It is bounded on the south by Massachusetts; on the north by Lower Canada; on the east by the western bank of Connecticut river, which separates it from New Hampshire; on the west by the middle waters of Lake Champlaine, and a part of the state of New York. It is divided into thirteen counties; and subdivided into about 240 towns, of six miles square. Population, in 1800, was 154,449; and in 1810 was 217,915 inhabitants.

The soil is fertile, and suitable for the purposes of agriculture, and the production of vegetation of all kinds,

as in latitudes of similar temperature. The soil is generally of a deep and dark colour, moist and loamy. This is particularly the condition in valleys, meadows, and in ground moderately inclining; on the highest parts of hills, the soil is frequently more shallow, gravelly, and dry. But few eminences are so much so as to be unfit for cultivation; and in many places, the sides and tops of hills are considered the best for ploughing and for grain.

The bases of the mountains, and often some distance upwards, furnish a rich soil, very productive of grass; but the summits of mountains are not worth cultivation, on account of the elevation approaching a higher and colder region of atmosphere, and from the abundance of rocks and sterility of soil. None of the mountains are so high, but that the tops are generally covered with trees and shrubbery of evergreens. This circumstance gave rise to the name of the Green Mountains, and from these the name of the state, *Ver Mons*, Vermont.

The mountains are the largest in the southern and middle parts of the state. A chain of mountains extends from the southern boundary to Onion river, in a line nearly occupying the centre of the state. At the northward of this river they dwindle until they seem but hills of considerable magnitude, generally fit for cultivation; they are covered with hard wood, and when cleared, are very productive of grass. From the highest land east and west, the face of the country is broken into hills of different height and magnitude; exhibiting a grotesque and romantic appearance of "orderly confusion." Notwithstanding they are generally

habitable and prolific in vegetation. The height of Killington peak, between this place and Rutland, as computed by Mr. Williams, is 3454 feet above the water at Quebeck. The altitude in this latitude, at which perpetual congelation takes place, is about 8066 feet above the level of the sea, as at Quebeck. The peak is the highest land in the state; of course none of the mountains are fixed in continual frost.

The numerous streams and rivers which run from the height of land on the east into Connecticut river, and on the west into lake Champlain, are connected in their course, with meadows of greater or less extent, very pleasant, rich, and productive. On the east side of the state, the Connecticut washes and enriches a large portion of meadow, hardly inferior to any in America. On the west, lake Champlain is surrounded with a wide extent of tolerably level country, which being overspread with a marly and calcareous soil, is noted for the culture of wheat.

From the mountains and hills issue numerous springs of as clear and pleasant water, as any country can boast of. This is particularly the condition in the eastern part; some exceptions may be made in that part adjacent to lake Champlain. Near this, the water is less rapid in its course, and percolating through beds of iron ore, and washing a marly and calcareous soil, receives impregnations from these, and becomes more or less unfit for use. The springs and rivers almost constantly afford a transparent water, in which soap is readily miscible, and consequently suitable for the purpose of wash-

ing and other culinary uses. It is very common, however, for the water of wells to contain carbonated lime, which renders it hard, unfit for washing, and produces an incrustation upon the inside of tea-kettles. I have never been able to discover, that the constant use of this water induces any disease, more than the use of water of the softest kind.

At various places in different parts of the state, springs have been discovered, having slight impregnations of mineral bodies; the medicinal qualities of these have not yet been discovered sufficiently to bring them into any considerable use.

The numerous rivers and large brooks, which descend from the height of land east and west, are interrupted in their course with many falls or cascades of romantic appearance; these are of great use in offering sites for mills, forges, manufactories, &c.

Besides lake Champlain on the west, lake Memphremagog on the north runs a few miles into the state; and also many small ponds are found in different places. Low, dead, or sunken land is scarcely found in any part of the state, except in the vicinity of Champlain; and even here it is not very extensive; enough, however, to affect the inhabitants with intermitting fevers. Except in this part of the state, intermitting fevers are not met with.

On the east, in the town of Strafford, has lately been discovered a bed of copperas, which has been worked to some advantage. In the western part of the state are many beds of iron ore, which have been worked to great advantage for many years; but none on the eastern part

sufficient to encourage the establishment of manufactories. In the town of Monkton has lately been discovered an extensive bed of clay, which is thought suitable for the manufactory of porcelain ware. This town is noted for its iron works. Large quantities of spurious marble are worked at Middlebury. Lime stone of the best quality is found in abundance in the western part of the state, and on some of the mountains, especially in Plymouth, where it is largely prepared. Many geological facts must be passed unnoticed.

A drought is rarely experienced in Vermont. The harvests often suffer more in the latter part of the summer and autumn, from too much rain than from a scantiness. The summer rains usually commence about the 20th of July, which sometimes are a great hindrance to securing hay and grain. The autumnal rains commence about the 20th of October. A great part of the year, the air is dry, pure, and serene, not attended with the mists and fogs so frequent in some places. Tin does not rust exposed to the air; nor do books contract mould. In the heat of summer and beginning of autumn, thick fogs arise in the evening in calm weather from Connecticut river, lake Champlain, and other large bodies of water, and continue from one to two hours after sunrise. I have not been able to discover that these fogs predispose the inhabitants to disease of any kind.

Snow falls sometimes in October, more frequently in November; not usually, however, to continue through the winter, until about the middle of December. Some winters are attended with thaws, which melt the snows,

and produce freshets. It is more common, that snow continues sufficient for good sleighing until the 20th of March. The snow is commonly about two feet deep in the winter, sometimes one, and sometimes three. These observations are more particularly applicable to the eastern section of the state, and the height of land. In the western part, and especially contiguous to lake Champlain, there is often such a scantiness of snow as to render sleighs useless, whilst it is very plenty in other parts of the state.

The white pine, the loftiest tree of the forest, grows in abundance on the banks of Connecticut river. It is the principal wood for about three miles from the river. Also the same ground is interspersed with white oak, yellow pine, black oak, butternut; in some places, walnut, chestnut, &c. The lowest flats or meadows are covered principally with the last mentioned timber, the pines of different species growing on the highest flats, adjacent hills, &c. The pine is found in great quantities in the neighbourhood of lake Champlain, and in considerable quantities on the banks of all the smaller rivers. The medium upland is covered with the sugar maple, white maple, beech, birch, white ash, black ash, basswood, hornbeam, cherry, butternut, elm, poplar, some hemlock, &c. The highest hills and mountains are adorned with evergreen trees, such as hemlock, spruce, fir tree; to which may be added the cedar, hackmetack, juniper, &c.

With respect to the course of the winds, a more satisfactory account cannot be given, than the observations made at Burlington, from 1803 to 1808. In 1682 obser-

vations, the wind was from the north 739 times; from the south 826; from the east 19; from the west 43; from N. E. 11; from the S. E. 1; from the N. W. 18; from the S. W. 25. It may be observed that the eastern part of Vermont is more exposed to the N. E. winds, than the vicinity of lake Champlain, and they are here more experienced. Thunder showers in summer most commonly come from the west or south-west.

From observations made at the same time and place, by President Sanders, it appears, that the mean temperature of climate for five years was, for January 14° 4; February 18° 9; March 28° 5; April 39° 5; May 56° 3; June 66° 6; July 68° 2; August 67° 6; September 57° 1; October 45° 2; November 33° 5; December 24° 7. The mean temperature of the air for the year was 43° and one third; and at Rutland 43° and one half; and this corresponds with the constant temperature of the earth in the same places, at 20 feet below the surface.

From 1701 observations of the weather, at the above time and place, the result appears to stand thus; 1025 fair; 676 cloudy; 289 rain; 117 snow; 19 fog; 45 thunder; 27 aurora borealis; hail and hazy none. *See Williams's History.*

The effect of cutting off the timber, and cultivating the soil, appears to be, to diminish the quantity of cold. The winters are not so severe, nor the snow usually so deep, as in the first settlement of the state.

Frost commonly ceases about the 15th of May; and again commences about the 10th of September. The seasons are sometimes varied about two weeks from their

usual course. Apple trees bud about the 20th of April; put forth leaves about the 1st, and show their blossoms about the 10th of May. Indian corn is commonly planted about the 12th of May, flowers about the middle of July, and is usually harvested the fore part of October. In the northern section of the state above the latitude of 44°, Indian corn seldom arrives to perfection, unless on meadow lands.

The fertility of the soil amply repays the labourer for his toil and care. The industrious farmer is very sure to have his barns filled with the best of hay and flax, his granaries with the choicest wheat, rye, corn, oats, barley, peas, beans, &c.; and his cellar crowded with cider, potatoes, and esculent vegetables, the effect of horticulture.

The country abounds in neat stock, horses, sheep, swine, poultry, &c. The beef and mutton of Vermont are not inferior to any in the union. Crossing the former flocks of sheep with the merino breed, promises advantage to the country.

The state was principally settled by emigrants from the neighbouring states, and some foreigners. The association in society is too short to assume a distinct national character; the predominant cast is English, in language, manners, customs, and habits.

The Vermonters, as a people, are respectful of religion; hospitable, liberal, industrious, and enterprising; tenacious of their rights, and fond of republican government. The minds of the youth are improved by education with nearly the same assiduity that their bodies are

nourished with the fruits of the earth. But without an opposite there can be no contrast. As disease invades a few, whilst health smiles upon many; so immorality, perfidiousness, and treachery, mark individuals for their own.

But little attention has been given to Botany in this region; a wide field is opened for some disciple of Linnæus. The following imperfect catalogue of indigenous vegetables, and such as grow spontaneously, and are used more or less medicinally, is offered as the best at hand.

Agrimonia,	Agrimony.
Adianthum,	Maiden-Hair.
Angelica Sylvestris,	Wild Angelica.
Acorus Calamus,	Sweet Flag.
Aralia Racemosa,	Spikenard.
Aralia Spinosa,	Prickly Ash.
Artemisia Absinthium,	Wormwood.
Arum Triphyllum,	Dragon Root.
Abies Balsamea,	Fir Balsam.
Arthritica,	Ground Pine.
Bardana,	Burdock.
Chenopodium Anthelminticum,	Oak of Jerusalem.
Cinchona Spuriosa,	Spurious Bark.
Conium Maculatum,	Cicuta.
Convallaria Polygonatum,	Solomon's Seal.
Eupatorium Perfoliatum,	Thorough Wort.
Filix Dulcis,	Sweet Fern.

Gramen Polygonatum,	Knot Grass.
Geum Rivale (cary ophyllata,)	Avens Root.
Panax Trifolium,	Ginseng.
Hamamelis Virginiana,	Witch Hazel.
Hepatica Nobilis,	Noble Liverwort.
Inula Helenium,	Elecampane.
Imperatoria,	Master Wort.
Juglans Cinerea,	Butternut (the extract.)
Juniperus Sabina,	Savine.
Lapathum Acutum,	Sharp-pointed Dock.
Laurus Sassafras,	Sassafras.
Leontodon Taraxacum,	Dandelion.
Leonurus Cardiaca,	Mother Wort.
Lobelia Inflata,	Lobelia (Indian Tobacco.)
Marubium,	Horehound.
Millefolium,	Yarrow.
Mentha Viridis,	Spear Mint.
Mentha Borealis,	Horse Mint.
Mentha Piperita,	Pepper Mint.
Nymphæa,	Pond Lilly.
Nepeta,	Cat Mint, or Catnip.
Nigella,	Golden Thread.
Oxalis Acetocella,	Wood Sorrel.
Phytolacca Decandra,	Garget.
Plantago,	Plantain.
Polypodium,	Hog Brake.
Populus Balsamifera,	Balm of Gilead.
Polygala Senega,	Seneca (rattlesnake root.)
Prinos Verticillatus,	Black Alder.
Prunus Virginianus,	Black Cherry Tree.

Pinus Canadensis,	Hemlock Tree (gum.)
Quercus,	Oak (the bark.)
Rhus Copallinum,	Sumach.
Salix Rubra,	Red Willow.
Sambucus Ebulus,	Dwarf Elder.
Sanguinaria,	Blood Root.
Sanicula,	Sanicle.
Solanum Dulcamara,	Bittersweet.
Smilax Sarsaparilla,	Sarsaparilla.
Scandix Odorata,	Sweet Cicily.
Spirea Trifoliata,	Indian Physic. Ipecacuanha.
Serpentaria Nigra,	Black Snake Root.
Symphytum Officinale,	Comfrey.
Tanacetum,	Tansy.
Tussilago,	Coltsfoot.
Ulmus Fulva,	Slippery Elm.
Urtica,	Common Nettle.
Veratrum Album,	White Hellebore, Poke root.
Virga Aurea,	Golden Rod.
Verbascum,	Mullein.

CHAPTER II.

HISTORY OF EPIDEMIC DISEASES IN THE STATE OF VERMONT.

The settlement of the state of Vermont must be considered as very inconsiderable at the close of the English and French war in 1763. From that time to the war between Great Britain and the American colonies in 1775, considerable progress had been made by numerous adventurers. A large number of inhabitants migrated to this state during the revolutionary war, but it was not until after the peace of 1783, that very important establishments were made.

The diseases previous to the last mentioned period were in common with those of the adjacent territories. Dysentery was universally epidemic in 1776 and 1777. At the same time it made great havock in the army at the capture of Burguoyne, in 1777, and prevailed generally in the New England states. The American army near lake Champlain suffered severely.

Nothing is more foreign from the truth, than the assertion, that this disease was communicated from one person to another, or that it was contagious. At the very time it prevailed in the American army, it also prevailed in different remote places, and even in the new settlements of Vermont, with great severity. It proved very

mortal in many places. From all the information I have been able to obtain, and from a faint recollection of the symptoms, I am convinced the disease was of a very similar character with epidemic dysenteries, that have since prevailed in the state.

In the spring of 1781 a catarrhal fever prevailed. It was not fatal, but in few instances.

In 1782 dysentery prevailed in some places only. Dr. Huntington informs me, that it was very frequent in the county of Bennington, in August and September, but not very mortal.

"Between the years 1773 and 1777, the malignant sore throat appeared in several towns, and at several different periods in the state of Vermont, and proved fatal to many children. During the latter part of the period, the measles became very general, and were, I believe, very inflammatory."

"During the revolutionary war, and especially toward the latter part of it, people were much affected with an eruption, called by some the *ground itch;* it being supposed, that it originated with the soldiers, who contracted it by lying on the ground." *Letter from Prof. N. Smith, Hanover.*

In the winter of 1786, pleurisy was very frequent in the vicinity of Shaftsbury.

From 1783, the close of the American war, to 1790, prevailed various diseases, which, if they do not mark the intervening period with very serious calamity, were however very severe in proportion to the number of inhabitants. The scarlatina, or malignant sore throat, was

very prevalent almost the whole time, but in different places in different periods of the term. It is particularly spoken of by one correspondent, as prevailing between the years 1787 and 1790. It was very fatal in many places. It severely affected the inhabitants in the western part of New Hampshire, during this period. I am not in possession of any evidence to show, that the sore throat of this period, was, in any respect, different from that which has since prevailed.

A circumstance, mentioned by Mr. Webster on the disease of this period, is of consequence in proving a general pestilential state of the atmosphere, as necessary for the spread of epidemic diseases. "This pestilential constitution was felt in the north of Europe. The scarlatina broke out in Edinburgh in the winter of 1782—3, a few weeks before it did in America; but of its progress I have no account. It appears to have been epidemic in London in 1786; so that its period was of about the same duration as in America. The contemporaneousness of this species of disease in Great Britain and America, deserves particular notice."

During this period canine madness was very frequent. Dogs, wolves, foxes, and cats, were said to be affected. In Barnard, a Mr. Stewart was bitten by a mad wolf, on the 17th of March, 1784. The wound was in his face. Twenty-seven days after the accident, he was attacked with symptons of hydrophobia, and died in three days. His son had a slight wound at the time, by the same animal, on his arm; he had symptoms of the disease in 30

days, but recovered. I am not furnished with the particulars of his sickness.

The canker rash was epidemic in the western part of the state, in the winter of 1787—8.

The various and common diseases of the country continued to prevail during this period as usual, such as pleurisy, inflammatory fevers, some partaking more distinctly of the typhus character, others bilious or intermittent, dysentery, cynanche trachealis or croup, colics, consumption, ophthalmia, rheumatism, puerperal fever, &c.

In 1788, dysentery was very considerably prevalent in different parts of the country. Dr. Huntington remarks, in speaking of the epidemic diseases in the county of Bennington, "but few families escaped that dreadful disease, and many died in different towns." Bennington and the adjacent towns are situated on high mountainous ground. I would here observe, that when this disease prevails epidemically, I have never been able to discover any difference in the frequency or fatality of it on the highest habitable hills, and the lowest valleys. Neither are the symptoms different, nor, in my opinion, does it require any difference, on that account, in the treatment. I have thought, that at such times when it prevails, it seizes with equal severity those situated free from any visible local miasmata as those situated in the atmosphere of such supposed influences. In September, 1796, I was witness to as severe a dysentery as I ever met with, in a neighbourhood of Stockbridge. It was situated on

high and fair land, and no local impurity could be discovered to my understanding.

In the autumn of 1789, the latter part of October and the beginning of November, the *influenza* became almost universally epidemic. It was, perhaps, as extensive influenza as ever affected the people of this country; scarcely a person was exempted from it, in a greater or less degree. In some, it was very severe, amounting to pneumonia, and proved fatal in some instances; but, considering the number affected, it was far from being a severe disease. All, who had it, were troubled with cough and soreness in the throat and lungs, defluxion of humours from the nose, and spitting of phlegm. Moderate symptoms of fever, such as cold chills, pain, weakness, quickness of pulse, &c.

In the winter of 1788—9, the measles were very generally epidemic. The disease did not seem to have any unusual symptoms; but many cases were followed by consumption. This may fairly be considered the effect of neglect or bad management; for if blood-letting and antiphlogistic remedies are thoroughly persisted in, the disease is not followed by any such malady.

In October and November, 1788, a *comet* appeared.

Something of a scarcity of provision was experienced in the year 1789, in Vermont, Connecticut, and some other New England states; but none greatly suffered. The statement of Mr. Webster was news to the people here, that, "In Vermont the people were reduced to the necessity of feeding on tad-poles and pea-straw boiled with potatoes. In one instance, four potatoes were sold for nine pence." ! !

1790.

The diseases of the winter of this year, were nothing different from what is common, except, that in many places, the pestilential influence, which caused the influenza, seemed to produce a greater number of diseases of the lungs than usual. In the spring, the influenza again appeared, and became very general. At this second appearance, after being so general the fall before, it was attended with a greater degree of inflammation in the lungs than was produced the autumn preceding. A correspondent observes, at this time, "It fell more upon the lungs, and proved fatal to many, and exhibited symptoms, like the late epidemic affections of the lungs, but of a milder form. The patients, who died of it, lived longer after the attack, than they did in the winter of 1812—13."

As severe pneumonic affections are very commonly preceded by influenza, it may be suggested, that probably this second appearance of this disease, by some favourable change in the elementary principles, took place instead of severe pneumonia, or some other fatal epidemic. The pestilential state of the atmosphere is generally progressive; slighter diseases appear at first; but this is not invariable; salutary changes may take place, and that state of atmosphere, which would have produced a fatal pneumonia, in a state of rapid progression, might produce nothing but a severe influenza, in a slow progression.

1791.

This year may be considered pretty healthy. I have no information, nor any minutes of any epidemic prevailing this year; except one correspondent remarks some prevalence of the measles.

1792.

This year also was free from severe diseases of any particular epidemic character, or as prevailing in a general and severe manner. Notwithstanding, the sum total of sickness is very considerable in the most healthy seasons.

1793.

Diseases of various descriptions began to assume a more serious aspect this year, than for some years past. Inflammatory fevers, or what were called by some bilious, were considerably frequent. The malignant sore throat, or canker rash, began in various places this year; as in the south part of Vermont, in New York, Massachusetts, Pennsylvania, &c. but did not appear at Bethel, where I then lived, until two years after. By advice from Doctor Littlefield, of Arlington, it appeared in this place, Landgate, and Salem, this, and the following years, considerably mortal in some neighbourhoods.

1794.

Nothing very remarkable occurred this year, respecting the spreading of any severe epidemic, in this vicinity. It may be remarked, that almost all diseases of pyrexial

character, became more severe than they had been for a few years past. A few cases of sporadic fever with anomalous symptoms, terminated fatally in a short time.

Typhus fever is said to have prevailed in the vicinity of Bennington and adjacent places. Perhaps fevers, here at that time, might as well have been called typhus; the difference is nothing very important. They were often denominated nervous or slow fevers; but when they prevail very considerably, they are said to be contagious. This circumstance has deceived more or less people, in all ages, and in all diseases. Influenza had a spread this year in its usual manner; not so severe as some of later years.

1795.

In the winter of 1794–5, an epidemic pneumonia prevailed, or as it was called, pleurisy. It was attended with severe pain in the side, cough, fever, some spitting of blood, and other symptoms common to that disease; as also symptoms of oppressed action common to severe epidemics. It commenced in January, in the county of Windsor, and continued till April. In some places, it was considerably mortal. Much, in this respect, depended on the treatment. It was frequently connected with a small oppressed pulse, paleness, &c. Where blood letting was omitted, and reliance placed on opium and other stimulants, as also salivation, as practised by some, the disease became unmanageable. When treated with free bleedings, sweating, blistering, and antiphlogistic remedies, it became, for the most part, very manageable.

This disease seemed to be connected with the other epidemics, that prevailed at this period. Nothing is more common than for one epidemic to be changed into another form of appearance, by a change of local affection, either, from a change of the predisponent principle, or by a change of season or other circumstances. The malignant sore throat, or scarlatina, or rather angina epidemica, had been in other parts of the country for two years. The next winter after, the pleurisy appeared in this vicinity, the scarlatina raged with much violence in some places, previously occupied by the pleurisy. If I am not greatly mistaken, these two diseases were contemporaneous in some places.

In the autumn of this year, the ulcerous sore throat, or angina, began to appear in the county of Windsor, or in that part of it, situated on White river, particularly in the towns of Bethel, Stockbridge, Barnard, and Royalton, also in Woodstock, Randolph, and adjacent towns.

It had been in the neighbouring states for a year or two, and in the southern part of Vermont. It now spread through the middle and north parts of the state, I believe very generally, and continued through the next year; prevailing most in the cold season of the year. Dysentery and common fevers prevailed mostly in the warm season of the year.

1796.

The first winter months of this year were the season of the greatest prevalence of the ulcerous sore throat, or canker rash. It attacked, with great force, children and young people. Some aged people had it, who said they

had been affected with it in their younger years. The eruption was, for the most part, very red, sometimes more of a crimson appearance; some cases had no vestige of eruption. Some had great swelling in the throat externally as well as internally. The fatal cases terminated, sometimes on the third, more commonly on the fifth or seventh day, with great distress, delirium, and difficult respiration.

No data can be procured, in this part of the country, to ascertain the number of deaths in each town; if any thing is offered, it must be a matter of opinion. I should say then, that in towns containing 150 families, perhaps 20 or 25 died. Some towns had more fatal cases than others in proportion to their population. During this and the following year, it affected perhaps all the towns in the middle and northern parts of the state.

It is said this disease invaded Boston in 1795, but I do not learn the month. It seems, this disease had a progression from south to north. It was in the city of New York in May, 1793; and in England about the same time, and continued there for several years with different degrees of violence. *Webster.*

The pulmonic fever of the winter of 1812–13, evidently began in the north, on lake Champlain and in Canada. It was destroying the soldiers at Burlington, about a month before it appeared at Woodstock and its vicinity. It was not until the following winter, that it appeared in any considerable degree in Connecticut, the middle, and some of the southern states. Perhaps these facts may be of much future utility.*

* Since writing the above, an account is noticed in the National Intelligencer, from Ersalls Martin, (perhaps of

The measles appeared in the spring of this year. Many cases were very severe. In the summer of this year, the common fevers of the season seemed to assume a more formidable appearance.

In the latter part of summer and in the autumn of this year, dysentery was considerably frequent, and very fatal in some places. Small children were often destroyed by it, within twenty-four hours. The pulse would soon become exceedingly quick and small, and the patients sink and die, in some measure as in spotted fever. It was very fatal in a neighbourhood in Stockbridge. It was very severe in different towns in the state.

Doctor Gridley of Castleton observes; "The dysentery has often been prevalent in this town and county; I believe it never appeared with so alarming symptoms, as in the summer of 1796. It was also very distressing in Rutland."

1797.

This year, the scarlatina continued in the middle and northern parts of the state, more particularly in the cold season of the year. The summer and autumn were accompanied with dysentery, in several towns, in Vermont and New Hampshire.

Fevers, which had formerly been called inflammatory, bilious, or remittant, seemed to assume a more formidable aspect. They were now called by some typhus, by others putrid. In some instances, the patients would

apocryphal authority,) that a disease similar to this prevailed at Easton in Maryland in the winter of 1812–13. "Out of a population of 1500 souls, 500 died."

be affected with a yellowness of the skin, and without any particular affection of the region of the liver. This yellow colour was not so often an attendant of severe cases, as of the more mild. It was sometimes discoverable in persons so slightly indisposed as to be able to go about.

But a small proportion, however, of those affected with fever had the yellow colour. The head and stomach were most affected; often attended with delirium, and afterward with puking. The fever, although generally pretty severe at its commencement, had a strong tendency to procrastinate its period of termination; it was therefore called slow or typhus fever. This fever appeared to be of the same character with that, mentioned by Mr. Webster, as affecting Windsor, Hanover, and Royalton the following year. Bethel is situated on White river, four miles west of Royalton; the fever prevailed in all that vicinity, this year and in 1798. It did not arrive at the height of its greatest severity in this region, until the year 1800; but has continued every year; and with much severity in 1803; and more or less until the present time; affecting different towns with different degrees of severity. Since the years 1807 and 8, common typhus has been less frequent, although a pretty constant attendant. Canine madness prevailed this year.

"In August 1797, appeared a comet, which according to calculations of astronomers, passed near the earth, although it was of small apparent magnitude, and seen by few people." *Webster.*

1798.

The most prevailing diseases of this year were typhus fever, and dysentery. They were both severe in some places and neighbourhoods, whilst others were more exempt. Typhus fever prevailed in Hanover, New Hampshire; at Windsor, Royalton, Bethel, Randolph, &c.

There was something of a drought in the months of July, August, and September, which are the principal dysenteric months. But dysentery as often prevails without drought. By letter from Dr. Ware, of Pomfret, "seventeen adults died of dysentery in September and October, chiefly under a course of high stimulants. Those who recovered were treated with alkaline and neutral salts."

During the latter part of summer and autumn, of this year, if my information is correct, the dysentery proved very fatal at Norwich, on the banks of Ompomponoosuck river; about thirty died.

In the autumn of this year, a mortal dysentery is reported to have prevailed at Farmington, in Connecticut. It is said to have been caused by miasmata from stagnant water, or the overflowing of the meadows by a previous freshet. It cannot be said that the local cause did not originate from this. But what should cause the same disease in Pomfret, situated upon fair high ground, with not one fourth of an acre of meadow or sunken land in the town? What should cause it upon the dry and pleasant banks of the Ompomponoosuck in Norwich? or the dry upland in the east of Hanover? or on the heights

of Bennington, or the hills of Randolph, Stockbridge, and a variety of similar situations, in the eastern part of Vermont, whilst many other situations of low land were exempt? It may have a local cause which co-operates with the general pestilential condition of the atmosphere; but physicians must use more vigilance and exertion, before the particular conjunct cause can be identified; more observations must be made; and they must be divested of the old false theories, that have been so long used to no good purpose. When the general pestilential influence is present, perhaps very slight local causes may give it energy, and these may be such as have hardly been thought of. When epidemic diseases are once excited in a neighbourhood, are they propagated, in part, by a sort of sympathetic association of which the subject is unconscious?

Typhus prevailed at Arlington; one death in twenty-five cases. It began in July, and continued till November.

The dysentery, this season, began in Sandgate and Salem, the latter part of July. It was very mortal in that region this year, as well as in other places. About fifty died in those places. Dysentery was very severe this year, in September and October in Bethel, especially in a particular neighbourhood. I believe ten or twelve died in this neighbourhood after a short term of sickness. About eighty had it in the town.

1799.

Typhus fever and dysentery were very prevalent, this year, in different places. Typhus fever began to be

pretty common at Woodstock, in many cases alternating with dysentery.

Continued or typhus fever prevailed with much severity in Bethel, Royalton, &c. The disease commonly yielded to the depleting and diaphoretic method of cure, diligently persisted in.

Many towns in the western section of the state, were afflicted with dysentery; also in the eastern part, but not with the severity of last year.

It may be remarked, that although dysentery prevails usually in August and September, it is not confined to these months, neither to the warm season. This year dysentery prevailed in Bethel, in March and April. About fifty cases occurred, principally in one quarter of the town. The symptoms were as distinctly marked as in any dysenteries I ever witnessed. Neither could I discover any peculiar state of the system different from the autumnal dysenteries. The disease was very obstinate, but not attended with the fatality of some dysenteric periods.

1800.

The summer of 1800, seems to be the period of the greatest severity of typhus fever in this vicinity, particularly at Woodstock, where I then lived. It prevailed with its greatest force in July, August, and September; but was frequent in the beginning of winter. It showed a strong tendency to affect the stomach and bowels, by producing severe puking, and also in producing intestinal discharges of blood; oftentimes to a great amount in a short period of time. It also had a strong tendency

to continue a great length of time. In some cases, treated improperly, or neglected, it would terminate fatally, in about a fortnight. Others of a slighter degree of violence, under like management, would terminate fatally, perhaps in twenty, thirty, or forty days; whilst some might recover after an hundred days, being mere skeletons.

In some cases, the access of the fever would be considerably violent; in others, and more commonly, the fever would be four or five days in forming.

Dysentery and cholera morbus frequently appeared in summer, and pleurisy and croup in winter.

"In the summer of 1800, dysentery appeared in the east part of Hanover, and in several adjacent towns, and carried off many children and some adults, to the number of between seventy and eighty. In the former year, when Hanover was visited with the dysentery, it was confined to the College-plain, so called, and between twenty and thirty died of it. In the last mentioned season it did not attack any on the College-plain. The same year it prevailed in several towns in Vermont." *Letter from Prof. N. Smith.*

1801.

The most prevalent diseases of this year were the same as those of several years past. The fever, called typhus, prevailed more or less in different places; also some dysenteries.

Intermitting and remitting fevers are very common in the western part of the state, adjoining lake Champlain. They extend but a little way from the lake, un-

less in the vicinity of low and wet land. They are not so common as in former years, soon after the clearing of the land. They are not met with in the eastern section of the state, unless some solitary cases contracted by travelling in the neighbourhood of the lake.

It has frequently happened, that people from the eastern part of the state, residing only a short time in the vicinity of the lake, in the summer season, would experience the disease; and after appearing to be perfectly free from it through the winter, perhaps for six months, and residing all the time in the eastern part, would have another attack in the spring. These second attacks were often very obstinate.

Calculi of the urinary passages is a very rare disease in this state. A peculiar chronic inflammation or irritation in the neck of the bladder is more common, and has often been taken for calculi, by experienced men upon a slight examination.

1802.

Dysenteries very generally prevailed the summer and autumn of this year. They did not seem to be confined so strictly to particular neighbourhoods, as on some former occasions, but were heard of in almost all directions. Dysentery was very mortal at Greenfield, in Massachusetts. I believe about fifty died in one part of the town. It prevailed, this season, very extensively in the state of Connecticut. I am not in possession of any proof how far this disease extended this season, but believe it was pretty general in the New England states.

It is not expedient to enter into any discussion in this place, on the treatment of this disease. It may, however, be observed, that it is a general disease of the system, as much as any epidemic that affects the people of this country. It has a locality; so has every other epidemic. So long as the treatment is directed principally to the local affection in the intestines, little benefit can be gained. If it is treated by general remedies to remove the violence of fever, and general diseased action, the local affection will subside of course in due time.

I am informed that the malignant sore throat prevailed in Cornish and Claremont, N. H. in the spring of this year; about thirty had it, and several died. The measles spread pretty extensively this winter and spring.

Pertussis, or hooping cough, prevailed this year. "The hooping cough and measles were frequent in Pomfret in August and September. A dysentery followed the measles, which proved fatal to most of the children, under the age of three years, who were affected with it. Alkaline absorbents were the best remedies." *Dr. Ware.*

In the winter of this year, many cases of *cynanche trachealis* or *croup* were met with.

1803.

As steadily as the seasons of the year return, have typhus, or mixed fevers, and dysenteries, returned for several years in succession. Their obstinacy, and perhaps their frequency, this year, has hardly been surpassed in either of the years during this pestilential period. These diseases did not appear so frequent and numerous

at Woodstock, as in some former seasons; but, in many towns not far distant, they were very severe. Both these diseases, as also the scarlatina, were very prevalent in Hartland, especially in that part adjacent to Connecticut river. The fever and dysentery prevailed in the same neighbourhood at the same time. In the same patient, it would sometimes be fever, and sometimes dysentery.

The diseases of this season were very extensive; but few towns escaped unusual sickness in the summer season, whilst but little sickness prevailed in the winter.

In 1802 and 1803, the *canker rash*, or *throat distemper*, prevailed very generally in Vermont and New Hampshire. It was not so general as that of 1795—6 and 7; and I believe not quite so mortal. Since about the year 1803 or 1804, it has not prevailed in this part of the country.

According to a letter from Dr. Littlefield, of Arlington, this disease prevailed there and in Sandgate, Salem, &c. about this period, or rather more particularly in 1803. He says, "anasarca has occurred very frequently, almost in every severe case." Our reflections on this will be found under that article.

Dysentery, says a correspondent, was very distressing in Hubbardstown; but I have no particulars.

Hooping cough prevailed very considerably this year, particularly in the latter part of summer and autumn. It proved fatal in some instances.

1804.

The diseases of this year were less remarkable than during several of the preceding years. Fevers and dysenteries in summer, and pleurisies and quinsies in winter, were considerably frequent.

In autumn the typhus fever was epidemic in several towns in the west part of the state.

Dr. Bowen observes, that the canker rash prevailed in Reading in 1803 and 4. In 1803, it assumed the inflammatory type. Out of about two hundred cases, treated as an inflammatory complaint, ten only proved fatal. In 1804, he thinks, it assumed the *malignant type*. Fifteen died out of forty cases. In 1803, his common practice was blood-letting, neutral salts, &c. In 1804, he thinks blood-letting was injurious after the first 24 hours. Warm bath and small bleeding were useful, if practised early. He further observes, "In the fatal cases death happened from a translation of inflammation, and effusion in the brain, as appeared on dissection."

In September, an influenza or slight catarrhal fever appeared; it was general on the west side of the state, but my recollection of it is imperfect. This season, dysentery prevailed with great severity in Castleton. About this time, says my correspondent, it swept away vast numbers in Orwell and Shoreham.

Pulmonary consumptions are prevalent, more or less every year.

1805.

We continue to be associated with our former companions, as closely as misfortunes tread upon the heels of disobedience. Some dysenteries, but principally typhus fever. I have thought the fevers of this autumn and winter not inferior to any we ever had in this vicinity, in their obstinacy. They were not so frequent in those neighbourhoods that had been formerly afflicted; but in some others they were very severe. In one neighbourhood in the north part of Hartford, typhus was very severe; it continued through the months of September, October, &c. to February. About *one* in *ten* died.

In the spring of this year, several instances of *canine madness* occurred.

1806.

Dr. Bowen further observes: for fifteen years past we have had some cases of dysentery every year; in 1800, 1802, and 1806, it prevailed generally. In 1806 and every year since, he observes, I have found it a different complaint from what our authors have generally described it to be. He considers it to be attended with fever, and an inflammation of the inner coat of the whole intestinal canal, with effusion of blood, mucus, &c. "In more than three hundred cases within eight years, not a solitary instance has occurred where *scybala* were discovered."

Since the year 1806, dysenteries have been less frequent and less fatal, than for seven years previous. Some late seasons have passed with but few cases.

1807.

A very extensive and severe *influenza* prevailed this year, all over the United States and Canada. It likewise appeared in Europe. It seemed to have a moderate progression. It has been supposed by some that it began at some certain place, as for example, at the city of New York, and spread in different directions, but this is doubted. Information might not have been correct on this point. The liberty will be taken to suggest a mistake in the *Medical Repository* for 1808, on this subject, where it is represented as appearing much later in the northern states, than in the city of New York. The supreme court of this state commenced its session at Woodstock on the 18th of August. The trial of two prisoners indicted for murder, drew a great concourse of people together. The disease was almost universal in this and the second week of the court, affecting a great proportion of the attendants. It was noticed a few days before the sitting of the court. It appears from the statement alluded to above, that this was very near the time it appeared in the city. It prevailed very generally about this region at the same time; but in particular places, its attack was a little later.

It proved rather severe in many places. The severity of pain in the head or side required blood-letting, moderate sweating, cathartics, &c. to remove it.

Besides influenza, some places were afflicted with fevers, which some called *bilious*, others *typhus*. At Randolph, Brookfield, and Brantree, fevers prevailed with considerable mortality.

A correspondent remarks, that typhus was more extensive and mortal in the west part of the state in 1807, than at any other period.

About the 20th of September, a small *comet* appeared in the western part of the heavens. It was visible only for a few weeks.

1808.

Fevers began this season in the month of July, continued through August, September, and October. A great many were affected, and the disease proved mortal in many instances. It was particularly so in the family of Jacob Smith, Esq. of Royalton; his wife and two others of his family died with it. About thirty cases occurred in the village of Woodstock under my attendance; I believe not a fatal case happened at this time. They were generally treated early with frequent and full bleedings; often three times in as many days; with frequent emeties and cathartics, blistering, sweating, &c. By these remedies, apportioned to the violence of the symptoms, the disease was arrested, and almost every case restricted to one or two weeks, that was treated in a similar manner; whilst others that were treated by opposite measures, were sick the usual time.

I was attacked with it myself, in the latter part of July; but the above measures, so far averted the disease, as not to confine me strictly one day. With much exertion I was able to attend upon others. Again in August, another attack was averted by similar measures; and again in the fore part of September, a

third attack, after fatigue and exposure, confined me four weeks with a serious disease.

The diseases of the winter following, were nothing remarkable; it might be said to be healthy.

1809.

It appears from a communication from the Rev. Ebenezer Fitch, president of Williams' college, to Dr. North, that the average heat of this summer was two degrees below the average heat of seven successive summers, ending in 1810; and that the average heat of 1810 was one degree below the average heat; and consequently these two summers were considerably colder than usual. This was undoubtedly the fact. The summers of these two years were so cold, that corn did not ripen as usual, in this latitude.

I would suggest, that diseases are not much influenced by the sensible qualities of the atmosphere, any further than they act as exciting causes. If the general pestilential state of the atmosphere be absent, a few degrees of difference in heat or cold, make no sensible variation in the quantity of sickness. The summer of 1805, averaged five degrees of heat above 1809, yet we do not find either of these summers attended with any more, nor indeed hardly so much sickness generally, as other summers. The like may be said of summer and winter.

With respect to the coldness of summers, it will be suggested, that the great planetary influences which alter the attractions of minor planets, not only produce a variation in the quantity of heat and cold, but also

effect a change of elementary principles, so far as to predispose the bodies of men to commotion and disease. In this view coldness and sickness would both be separate effects of the general cause. The greatest quantity of sickness in New England was in 1811—12 and 13.

Spotted fever prevailed this year very considerably in the state of Connecticut. The year was not remarkable for any severe epidemic in this state. The common routine of sickness continues. A blast on wheat.

Previous to this year, the greatest proportion of sickness from epidemic diseases had occurred in the summer and autumnal months, very constantly. Since this time the proportion has been reversed; and perhaps two-thirds of the sickness has happened in the winter season of different years to 1815. Sickness from epidemic diseases is here alluded to particularly. This is a prolific subject for speculation, and merits investigation.

1810.

No extraordinary circumstances attended diseases this winter, in the vicinity of Woodstock. But that pestilential influences existed in the common atmosphere, is inferred from the prevalence of different diseases in other places.

The spotted fever prevailed this year in other places, more than it had done any year since its first appearance, particularly in Massachusetts. As it may be interesting to many to know the progress of the spotted fever in other places, the following extract is inserted from the *Repertory*, taken from a letter from a gentleman in Pe-

tersham, dated March 19, 1810. "The distress of this part of the country is beyond any thing you can conceive. Seven men and women, and one child, were buried in Barre this afternoon. Sixty are now sick. Dr. Holmes told me this day that twenty physicians would not be too many for that town alone, and the disorder had made its appearance in Athol."

Considerable sickness prevailed in the western part of the state of Vermont. In a communication from Dr. Gridley, of Castleton, it is stated, "During the winter of 1809—10 the typhus fever entirely subsided in the county of Rutland. Almost every disease of the winter and spring appeared to be of the *sthenic* class. Pulmonic inflammation was frequent and formidable. Bloodletting in the most copious manner, and repeated with a bold hand, became necessary to save the sick from death. Many children were affected with the *cynanche trachealis* or *rattles*. Former remedies availed but little. I resolved the whole difficulty into a phlogistic diathesis of the system. I drew blood repeatedly from young children, often from the jugular veins."

"One patient, who had apparently a moderate attack of pneumonia, was bled once and took a cathartic. The disease changed to the bowels, resembling enteritis. On the 8th day of his illness, I drew about three quarts of blood at two bleedings, which relieved him. About 24 hours after he sent for me in haste, and said he must be bled again. He now lost 24 ounces of sizy blood, which again relieved. The bowels now became pervious, and the patient recovered."

"Dr. Safford assured me, that during more than twenty years practice, he never found it so necessary to use the lancet, as during this winter and spring. The sthenic diseases abated at the return of summer's heat. In the autumn of 1810, and the following winter, typhus fever again appeared. In the autumn of 1811, diseases of the inflammatory type became frequent."

After this some cases of dissection are mentioned of those who died of *croup* and *enteritis*. Some that had been treated by quacks for worms. All showed the highest degree of inflammation.

For the like purpose of showing, that the diseases of this winter were of the inflammatory or sthenic kind, the liberty will be taken to copy a letter in Dr. North's publication, from Dr. Powell, of Burlington.

"Since the above was written, I have received a letter from Truman Powell, M. B. dated Burlington, (Vermont) August 8, 1810, from which the following is an extract. Speaking of a complaint which had raged in his neighbourhood, he says, 'It commenced about the first of January, 1810, and continued to increase until about the first of March, when it seemed to be pretty much on the decline, and disappeared by the first of April, though in some towns further south, it prevailed much longer, even into June. But those towns were generally exempted from the disease during the winter. The symptoms of this disease were those common to all other pneumonic affections, differing no way but in the degree from a common pleurisy or peripneumony. It generally among physicians went by the name of malignant pleurisy, or peripneumony, which seemed

to be an appropriate term. It predominated over all other diseases; no person could fall sick without having some pain in the breast, side, or shoulder, with cough and expectoration of a very ill conditioned matter, resembling what is generally discharged from sores in a state of gangrene; no precursory symptoms were to be observed, whereby the approach of the disease could be known. The seizures were almost instantaneous. Many would get up in the morning and eat a hearty breakfast, and, in thirty minutes, be in the most excruciating pain. It generally finished its course in six or eight days, terminating either in death or a favourable crisis. A few instances occurred where the weight of the inflammation fell upon the throat, in which case it produced a complete angina maligna. A few other cases occurred where the face and limbs were much tumefied and inflamed, in all of which cases the lungs seemed exempted from inflammation. I have been informed by a respectable physician, who lives at the northward, that, in his vicinity he had a number of cases of spotted fever with the disease above named; but one or two happened in this vicinity. Yet I have no doubt that the spotted fever and the disease above named originate from one and the same cause, differing no way but in degree and seat of the urgent symptoms. I believe it will be acknowledged by every medical gentleman, that two epidemics diametrically opposite in their natures can never exist at the same time in the same climate (diseases of specific contagion excepted:) therefore, I conclude, that the malignant pleurisy, which existed in this country last winter, and the spotted fever, which prevailed in

sundry parts of New England, have one and the same cause, differing only in degree and seat of the urgent symptoms."

The identity of the hurtful principle will not be doubted. It will be conceded, that what constitutes the difference between pneumonia, cynanche trachealis, phrenitis, enteritis, and that peculiar disease called spotted fever, consists in a difference of severity and of local affection, in the part upon which the principal force of the disease may fall. Symptoms are different not only from an affection of different organs, but the identical part of the organ affected. For example; when the bronchial membrane of the lungs is affected, the symptoms are not the same, as when the investing membrane of the lungs is affected, &c.

But the foregoing facts were introduced, principally, to show, that the prevailing diseases of this winter were sthenic or inflammatory; and this accords with my own observation. Although sickness was not great in this vicinity, a very considerable number of cases occurred, and they were treated very successfully by bleeding and antiphlogistic remedies. It will be suggested, that those diseases of the winter season, such as pneumonia, spotted fever, &c. are liable to impose, in a great measure, upon the judgment of the observer. The symptoms of torpor, or inaction, only denote a higher grade of diseased impression: remove this imposing restraint to the ordinary grade of action, so that the functions of the system can respond, and high action called sthenic, will become apparent, and the patient in the way of a cure. The word

malignant denotes a higher grade of impression; so far oftentimes, that the functions are impaired suddenly and totally. A person may be *said* sometimes to die of debility, or some asthenic disease with all the symptoms of apoplexy, and with such a pressure in the vessels that a purple colour is manifest on the surface, and perhaps blood issuing from the lungs or some other part. This does not seem correct.

Although a patient, in this condition, may receive some small inconvenience from the great contrast he may experience, for the time present, by the loss of some blood and other evacuations, yet it is the only way to a successful termination. After the faintness from sudden subduction passes off, the action of the system emerges into inflammatory or sthenic action; but more hereafter.

Is it possible to conceive that the diseases here, and those a little distant, as in Connecticut, and the north part of Massachusetts, should be directly opposite, in like habits, and in the same season of the year? Is it not more improbable, that in the same neighbourhood, and at the same time, two diseases should prevail, and perhaps in the same family, of direct opposite diatheses, requiring opposite treatment?—It is a common observation, and I think pretty just, that for two or three years before the spotted fever appeared here, common diseases and slight indispositions were attended with more cutaneous eruptions or slight erysipelatous affections of the skin than formerly.

At Sandgate typhus fever was prevalent from July to March; sixty cases and six deaths.

A succession of rainy weather this year in July and August, which occasioned a flood, and did considerable damage; it was not, however, so great as the one which happened the year following.

1811.

The disease, called spotted fever, made its first appearance in this town and vicinity this year, in the month of January. As many put much reliance on the sensible qualities of the air and vicissitudes of the weather causing diseases of our climate, I have thought best to insert a short abstract of the weather made by myself at the time.

This disease appeared in a decided form about the 23d of January, although some cases happened a few weeks previous, showing a *petechial* character. At this time the earth was fixed in frost with steady, moderate, cold weather, and a fine serene air. The weather continued unusually pleasant for the season, and without rain, until the 22d of March; then but little, and on the 23d, in the evening, considerable rain fell, with thunder and lightning.

A few days after the 23d of January, snow fell moderately, so as to make good sleighing, which on the 28d was but just sufficient to cover the ground, together with some ice. At various times, snow fell in the fore part of February, so that the whole was nearly two feet deep.

The snow storms were moderate, and with little wind. About the 26th of February, the snow began to melt by the moderate warmth of the air, and mild rays of the

sun. This state of the air, for the most part, continued with unusual pleasantness, and moderate south breezes, until the 21st of March, when the snow was gone, except in the woods, &c.

The preceding autumn was remarkably pleasant. But little rain fell after the high flood, the latter part of July; enough, however, to prevent a drought. The frost so far left the ground, that I saw people ploughing green sward on the 28th of March; a rare occurrence in this place.

Nothing remarkable occurred in the weather through the spring months. The snow was gone earlier than common, and the month of April was rather milder than usual. The spotted fever continued very severe through this month.

For about two months the greatest proportion of cases were confined to the village where it began; after about the 20th of March, the greatest proportion were in the more distant neighbourhoods. The adjoining towns suffered most severely the following year.

The number of new cases were about the same each week until about the 23d of March; perhaps thirty-five each week, in the neighbourhood and vicinity. As no correct account was kept, and as this village is situated near the corner of several towns, no exact limits are set.

The week previous to the 23d was attended with the greatest number of deaths. The disease, instead of being ameliorated by the benign influence of the weather, seems, like the spotted adder, to gain new vigour from the rays of the sun.

I have no means of giving the number of cases, only as a matter of opinion. Perhaps there might be five hundred and fifty, or six hundred, reckoning five miles each way from the court house. The number of deaths by this disease in five months, was between sixty and sixty-five in the above limits. About eight of this number died before medical assistance could be procured. See further the history of the disease in Chap. VI.

The disease, in the course of the winter, appeared in a great proportion of the towns in the state, particularly in the eastern part extending to the line of Canada, and even very considerably into that province. From information, which I believe to be correct, from twenty to thirty perished in most of the towns in that region. In the town of Barnet, as published in the newspapers of the 1st of March, out of thirty cases, *nineteen* proved fatal, and the disease was still raging. The deaths were generally sudden, and caused great alarm and consternation among the people.

The disease was severe in Randolph, Barre, and vicinity. Many fatal cases occurred in that region, but I am not favoured with any statement from physicians in that quarter. Many cattle are said to have died in this region about this time. I have been credibly informed, that the spotted fever prevailed in the new settlements of Lower Canada, in the summer of this year, and the following spring; and also, that blood-letting was very useful.

The attacks and progress of this disease were generally sudden. Children sometimes went to school apparently in perfect health, who would return home distressed, and, in some instances, be corpses in three or four hours. More often, they would awake in the morning in a comatose and distressed state, with a very quick pulse, and die in a few hours. It was not confined to children. Many cases occurred in men and women, possessing every appearance of the most firm and athletic habits, being prostrated before it in a few days, and sometimes in a few hours, with *apparent* symptoms of debility or asthenia. They would often be incapable of describing their feelings, from an imbecility or aberration of intellect, and commonly expire in a comatose state.

Dr. Ware mentions, that in Pomfret, this year a number of foxes were found dead; and that some were killed at mid-day by children, near dwelling houses, to the amount of about a dozen. What their disease was he could not determine. Also squirrels, about this time, were seldom seen, and are not yet so plenty, as before. They were supposed to be destroyed by pestilence. Disease appeared also among sheep and geese.

Spotted fever appeared in Reading, the latter part of February; about 35 cases; only 10 or 12 severe; three deaths. In December, 20 cases, five deaths.

Dr. Huntington observes, that the spotted fever appeared at Greensborough the 19th of March. He had 73 cases in that town and in Hardwick, and not one proved fatal. He bled from one to five times, sweated, gave also Vol. Tinct. Gum Guaiac. Ether, &c. He places

no reliance on pukes and purges, at this time and place. In other places he used them, but the result is not given.

It is a common observation, and I believe just, that the greatest number of severe and fatal cases of spotted fever, occurred in families most destitute of the common necessaries and comforts of life. Although many cases happened under circumstances the reverse of this, yet the cases could, for the most part, be referred to some unusual fatigue, or particular exposure. In families more destitute, not only the liability to have the disease excited, is greater, but also, when attacked, the means necessary for opposing its rapid and fatal tendency, are not usually at hand; neither are they applied with that solicitude and attention, which is characteristick of the more provident. Although a high state of stimulation is unfavourable to security from morbid impression, yet a low and torpid action, from scantiness of regular and warm diet, warm covering, &c. invites disease, especially in cold seasons.

"In the summer and autumn of this year, the dysentery raged with great mortality in Whitehall and Hampton, in New York. The attacks were severe, and the progress so rapid in young children, that almost every remedy proved useless. Soon after the disease appeared formidable at Whitehall, a great freshet spread desolation through Clarendon, Rutland, Middletown, Paultney, Castleton, and Fairhaven. The water was raised to an unusual height in lake Champlain; the low land in Whitehall was overflowed by the water of the lake, in a

manner unknown to the oldest inhabitants. This extraordinary phenomenon occurred on the 22d and 23d of July. The dysentery raged soon afterwards with great mortality. The period, in which dysentery has proved most distressing, has been from the first of July to the first of November. This is the period in which bilious fevers have uniformly prevailed in the vicinity of our stagnant waters." *Letter from Dr. Gridley, of Castleton.*

It appears from the above, that dysentery had begun before the freshet. How far this aggravated the disease, may be difficult to determine. I have not learnt that the places most inundated by the water, have been more sickly than others. The spotted fever raged the winter preceding and following. See further hints on the flood in Chap. III. s. 3d.

Our correspondent remarks, "in the autumn of 1811, diseases of the inflammatory type became frequent." At the same time, a considerable number of cases occurred in the vicinity of Woodstock, from the fashion of the day, called typhus; but which had considerable of inflammatory diathesis, although their period of termination was inclined to be protracted. Also some cases of severe dysentery.

In the months of September and October, appeared a very brilliant *comet.*

1812.

The spotted fever prevailed the winter of this year in Pomfret more than it did in 1811. It was very severe

in many cases. By report of Dr. Ware, 52 persons died of it this, and the preceding year. Some of these cases proved fatal before medical assistance could be procured.

More severe cases occurred in the south parish in Woodstock in some neighbourhoods, this winter, than the winter before; but the whole number of cases in the town, was not perhaps one to seven, that occurred the year before. In Reading 60 cases, nine fatal; mostly in thirty hours after the attack. In Plymouth, 30 cases, and four deaths.

In Arlington, on the Battenkiln river, and in Pownal, typhus fever prevailed. About one fatal case in every ten. This species of disease, which ought to be considered a mild continued fever, prevailed more or less during the period of spotted fever. It was common for a severe attack of the latter to terminate in typhus or continued fever of various duration.

The measles prevailed the summer and autumn of this year, principally in the western and northern parts of the state. Many of the soldiers of general Dearborn's army were affected with the measles on their return from the borders of Canada to Platsburg and Burlington, but a short time before the appearance of the severe pneumonic fever to be mentioned the following year. The measles had not left the army when the pneumonic fever began.

1813.

The autumn of 1812, and winter of 1813, ushered in the most severe epidemic disease, that has ever afflicted the inhabitants of Vermont, the epidemic peripneumo-

ny, or disease of the lungs. It seemed to have the features of the disease, that had been in the state for about two years, called spotted fever; the chief difference seemed to be, that now the greatest force of local affection fell upon the lungs. What elementary changes should produce an aptitude in the pestilential influence to affect, in a special manner, the lungs, must be left for speculative philosophers to suggest. The unity of the hurtful principle is chiefly inferred, from many places being affected with this disease, in some measure, a year or two before, whilst spotted fever more commonly prevailed; from spotted fever's occurring at the same time with this in many places; and from the common features, and sudden fatality of both diseases. See more of this in Chap. VII.

The disease appeared at the northward before it did in the county of Windsor, perhaps about one month. It appeared amongst the soldiers at Burlington, some weeks before it did amongst the inhabitants of that place. Very near the time it appeared at Burlington among the soldiers, it appeared also among the soldiers at Platsburg and Sacketts Harbour, and also in the camp at Greenbush, opposite Albany. No satisfactory account has ever been given the publick relative to the ravages of this disease at Burlington. I have solicited information from resident physicians there; but have received none. By information from some of the most respectable inhabitants of that place, and also from others residing there at that time, I am warranted in stating, that for some time, it was common for eight or twelve to die

in a day. The whole number is said to be not less than seven or eight hundred in four months. Several dead bodies were carried through this place in sleighs, to be interred among their friends. The number of soldiers stationed at this encampment was about twenty-five or twenty-eight hundred.

Perhaps the fatigue and exposure of a camp life to men not accustomed to it, might have a share in rendering the soldiers the first victims of the disease. The depression of mind from a repulse immediately before under general Dearborn, in an attempt to invade Canada, may also be noticed.

The disease was not, however, confined to the camps. As the pestilential state of the atmosphere progressed to a degree of greater violence, the disease appeared among the inhabitants in the most comfortable condition; first in the northern section of the state, and immediately after in the middle, and southern sections. It is said to be about three weeks after it was very severe among the soldiers at Burlington, before the inhabitants were much affected. It, at length, became distressing and very mortal among the citizens of that place; and in about one month from its first appearance, it was pretty general over this and the adjoining states. The pestilential diathesis of the atmosphere, was not at its zenith until the first week in March. In this month, it raged with its greatest severity.

It is said, that many of the soldiers died in four or eight hours after the attack, and a few in two hours. It was fatal also in some places among the citizens.

nearly in as short time. The common fatal period was about the fourth or fifth day. The symptoms of the disease are in short described in Chap. VII.

On account of the want of any regular returns of deaths in the towns in this state, it is impossible to ascertain the number that died of this disease.

From pretty satisfactory accounts from the Rev. Mr. Chapin, minister of the north parish in Woodstock, the number of deaths in both parishes by this disease the present year, were about fifty-four, in about five months. Whole number of deaths for the year, seventy-four. The town contains about 350 families, and the enumeration in 1810, was 2,672 souls. Five physicians.

By the statement of Dr. Ware, of Pomfret, it appears that "In December last, the lung fever began, and continued until about the middle of May, 1813. *Forty-four* adults died with it in that time." The correctness of Dr. Ware will serve as a specimen for other towns, where the neglect of physicians has deprived us of any statement of this disease. He further observes, "where the practice of bleeding, puking, and purging was pursued, free expectoration promoted, and kept up, and heating stimulating means carefully avoided, the patients generally recovered."

Dr. Page, of Sharon, states, that about forty persons had the pulmonic fever in that town, and that five died.

Dr. Littlefield states, that the epidemic began at Arlington about the middle of January, and disappeared about the first of June. "It was not so fatal in this, and some of the adjacent towns, as in some other parts

of the state. In Arlington, 10 deaths; in Sandgate, 20; in Sunderland, 1. From the best information, and some personal knowledge, I should say, in Manchester, 60 or 70; in Dorset, 40 or 50; in Rueport, 40 or 50; in Shaftsbury, 30; in Bennington, 70; in Pownal, 70 or 80."

"I have been credibly informed, that in Clarendon about 80 died; in Castleton, 60; in Shrewsbury, about 30. By the statement of Dr. Bowen, of Reading, it appears, that 44 died of this disease from the first of January to the 10th of June 1813, and 29 of other complaints; of which last number, were fifteen infants; four still-born, and eleven in fits, or unknown complaints. Four hundred cases of the epidemic and forty of the deaths, were after the first of March. The town contains about 1600 inhabitants."

Our correspondent further remarks, that previous to the first of March, he bled from two to four times, from 12 to 24 oz. each; his success was very great. But after this time he bled but little. In the latter period, the pulse was hardly perceptible; a sense of suffocation, the surface pale and cadaverous, or more commonly, a bloated purple colour, similar to a finger with a ligature on it; numbness, &c. From four to ten hours after the attack, the surface of the body would be often covered with spots or blotches like blood blisters; some of the bigness of a pea, others the size of a man's hand. Total loss of sight, insensibility, and other signs of approaching dissolution are mentioned. Sixteen adults died within six, or thirty hours after the attack, twelve of whom before any medical aid could be procured. It is further

observed if the patient was put into a warm bed, &c. the fever arose with a pulse from 90 to 110 in a minute, bounding, but easily compressible."

It might here be observed, that the pressure of calls upon our correspondent was so great at this time, that it might be impossible for him to bestow that attention upon individual cases, which their importance demanded.* I will take the liberty to mention again, that the disease assumed greater severity in this place at the above time, than it had before; greater diligence was necessary to counteract its fatal tendency. The applications ought to be earlier made; more external warmth, and I think I am right in saying more blood will need to be lost, in the course of the disease, under proper restrictions, to ensure a favourable issue. At this very period, I was severely attacked myself; it was not until four

* The trials of Dr. Bowen, undoubtedly, were something similar to what Dr. Gridley expresses of himself at this time. "Amidst the incessant toils and cares, which in me alas! induced premature old age, I had no time to number the sick. During two weeks preceding my own sickness, the urgent calls of humanity would not permit me a moment to make my charges on book. My soul was elevated above the desire of gain. So numerous were the sick that it became impossible to attend them in any proportion to their danger. The attendants from necessity, acquired the art of judging by the pulse and adapting remedies to its varying state. Heaven, equally merciful as just, did not permit a whole family to be sick at the same time." He further notes,

"I am inclined to believe the pneumonic fever raged with greater mortality and to a greater extent, on the western side of the Green mountains, in some proportion to the greater prevalence of the spotted fever on the eastern side."

full bleedings, were practised, that I gained tolerable ease. The same was done in many instances at this time by my suggestion, in other cases; and also the disease continuing very severe in the neighbourhood after my recovery, I practised it three or four times, generally upon the same patient, with complete success. Bleedings, without a particular regard to external warmth and collateral circumstances, are often injurious. But more hereafter on this subject.

I very much regret my not being enabled to make a more particular statement. Great difference exists in the number of inhabitants in different towns, and also, the number of deaths by this disease. It must be considered a low estimate to say, that the towns throughout the state averaged 25 deaths. About 226 organized towns of six miles square, make 5,650 deaths. Add to this 750 soldiers, which makes the number of deaths by this disease alone 6,400, in about five months.—Census for 1810, 217,913 inhabitants.

The latter part of the summer and the first winter months, a considerable number of cases of typhus fever occurred. Also several cases of *cholera infantum*. This last disease has prevailed more or less almost every summer, although it has not been particularly noticed before now.

1814.

The diseases of this winter were considerably similar to those of the winter of 1812—13, but not so numerous, nor generally so severe. Six patients were sick at the same time in one neighbourhood with pneumonic fever, in its most characteristic form. Scattering cases were

met with all winter. Also a few cases of spotted fever. About the 20th of February, I met a case of the latter, in a little girl, who was observed to be unwell early in the morning, and took an emetic, by the assistance of the family. It had only a moderate operation, but she was expiring when I arrived, which was about five hours from the attack.

Dr. Littlefield observes that, in Bennington county, consumption or phthisis pulmonalis "has occurred much more frequently in my practice, within five or six years past, than before." I think that I have had three times as many cases within that time as I had for sixteen years before. I did not notice this remark until since penning my remarks on this disease. My opinion there is in conformity to that of some other physicians in this vicinity. The remark is very important. It tends to show that phthisis prevails more at certain times and in certain places, than at other times and places. If so, it establishes the position I have attempted to lay down, with respect to the pathology of this disease. Or does a difference in the treatment in pulmonic fevers, in different sections of the country, occasion more or less cases of phthisis to follow such epidemics? The method of treatment most relied on by this gentleman, and I believe others in the vicinity, was a free use of *calomel*, very moderate bleeding, and mild diaphoretics, &c.

Mr. Strong, a member of congress, informs me, that the pulmonic epidemic, which affected the state of Vermont so severely last year, and also the northern states generally, this year, was very prevalent in the middle and southern states. That he heard of it whilst at Washington, from

different directions, and particularly from his brother, who lives near the mouth of the Ohio river, who informed him, that about thirty died of this disease in his neighbourhood. It has been said to be very frequent in Connecticut.

By the politeness of Dr. Jonathan A. Allen, I am favoured with an account of the severe sickness in Wardsborough, in Windham county. This town is situated about twenty miles west of Connecticut river, and east of the high lands. "It is variously broken into gentle ascents and descents, or hills and valleys, beautiful and romantic. No large streams pass through the town, but several small ones, sufficient to carry mills. Many springs of pure water; no swamps or meadows of any size; no stagnant waters; land moist and a dark loamy soil. A lofty mountain on the west is a barrier against the winds from the north-western points. The atmosphere seems pure and salubrious."

"The former diseases have been influenzas, fevers, dysenteries, &c. The diseases of last winter were pulmonic fevers, similar to those of 1812—13, but approximating more to catarrh. Several cases of typhus occurred, nine of which proved fatal; about the 10th or 14th day, they generally assumed the form of *pneumonia typhoides*."

"On the last of May the disease assumed a different form; two of the first cases proved fatal; the bodies suddenly ran into the putrefactive process. The coffin lids were very imprudently made open. The scent was very offensive to those who attended the funerals. In twelve or fourteen days from this time, from four to

seven cases daily occurred for some time. But few of those who attended the interment escaped an attack."

We cannot in this place make any remarks on the supposed contagiousness of this disease.

A summary of the symptoms of this fever, are headach, especially over the eyes, acute pains in the limbs, abdomen, &c. chills, rigors, &c. numbness and coldness of the extremities, and preternatural heat in the head. Internal heat manifested by hot breath, &c. "The skin had a peculiar feeling, different from mere inflammation." Pulse increased, &c. Delirium very common; "time lost by the patient, although he seemed rational." No proper crisis of the disease could be observed. Symptoms variable. If no abatement of the disease took place by the third week, the patient died. If a relapse took place, they would be sick much longer, and have symptoms of phthisis. In August, diarrhœa attended many cases. The attacks were sometimes sudden, at other times the patient would linger for a number of days.

The number of those who have had regular fevers, after the first of June, was about two hundred, and about as many more had the disease arrested by bleeding, emetics, catharties, &c. The account is dated Sept. 27th. It appears, the disease had not left the place at the time of writing. Our correspondent was confined eight weeks himself by the disease, and part of the statement was furnished by Dr. Wheeler, his partner in business. The treatment seemed to consist of a mixed kind, varying according to the circumstances of the case. Of the two hundred cases submitted to these gentlemen's directions, seven died. Six others also died under unfavourable cir-

cumstances; one, for instance, bled to death at the nose; one was unmanageable; one died of *cynanche maligna;* one not seen by any physician; two under adverse circumstances.

Also ten others died under the treatment of a noted *quack,* who used hot rooms, copious sweating, rum, ether, &c. But a very few recovered by this method. The whole number of deaths was twenty-three.

This statement furnishes a brilliant specimen of the identity of hurtful principle, its progressiveness, and mutation of diseased affection. In the same season and nearly at the same time, prevailing pulmonary fever, catarrhal fever, typhus or continued fevers of greater or less severity, cynanche maligna, dysentery or diarrhœa, and phthisis pulmonalis; and all these in a situation remote from ponds or stagnant water. Our views on these subjects will be developed in succeeding chapters.

Angina parotidea, or mumps, were prevalent the autumn of this year. This disease has prevailed at various times, although but little notice has been taken of it.

Some dysenteries in this vicinity this year. In Reading about forty. Dysenteries have prevailed in the vicinity of Danville, where a number of fatal cases have happened. Only a few severe cases in this vicinity.

An unusual number of slight icteric fevers were met with, the latter part of the summer and autumn of this year. In general they required but little medical aid. A very slight fever could be discovered, and also a slight yellowness in the skin and eyes, whilst the patients were oftentimes able to attend moderately to business. Slight pains were common; but not oftener confined to the sto-

mach or region of the liver, than to other parts. Slight emetics and moderate cathartics with an attention to promote perspiration, gave relief. Continued fevers have been considerably prevalent the whole of the summer in this vicinity. They generally assumed what is called the typhoid character. If left to themselves, or treated with moderate internal stimulants, they would continue four or six weeks.* Emetics appeared to be of singular service. A very considerable proportion of cases required one, two, or three bleedings. Like former cases of similar fevers, if the disease was early treated pretty roughly, its period would be greatly shortened. The disease did not seem to possess the severity, nor obstinacy, of continued or typhus fever of former periods. It disappeared about the middle of November.

Mention is made, in the *New England Journal*, of a fever in Massachusetts, the summer of 1814, very similar to that which has prevailed in Vermont. *See the above, Vol.* iv. *page* 21.

From a statement, made in the Richmond Inquirer, printed in Virginia, it appears, that a very severe epidemic disease prevailed in that state, in December. It is called a *contagious distemper*. Some extracts from a letter to the editors, will give a short account of it; dated county of Stafford, January 3, 1815. "The distemper is distressing beyond any thing you can imagine. It takes off whole families. I am fearful to send any of my family to Aquia. If the disease does not abate, I

* Three cases proved fatal in this neighbourhood, all treated more or less with calomel and opium. One terminated in two weeks; the other two in about four months, with unequivocal symptoms of phthisis pulmonalis.

am apprehensive, that it will destroy the greater part of our inhabitants. In King George, there was a family of ten; the whole died except a little boy, who went to a neighbour's house, after starving a day or two, and asked for some bread. He was asked if he had not a plenty at home; he said that his father, mother, and the rest of the family were asleep, and that he could not wake them. He was asked how long they had been asleep; he said a day or two. The neighbours went over and found *nine* of them dead! They were so much alarmed, that they concluded it would be best to set fire to the house, and burn them up; which was done!"

"The alarming disease, noticed in the above, has existed for several weeks in some portions of the seaboard. In the Northern Neck especially it has made the greatest ravages. It frequently kills in from six to twelve hours. It principally preys upon the most robust habits. Some describe it as a typhus fever; others as a violent inflammatory sore throat; the most of them as a putrid sore throat. It affects the throat most violently, and obstructs the circulation of the air through the windpipe. In a few instances, as the one above stated, the houses in which the dead have lain, have been burnt down to prevent the diffusion of the contagion."! This savours too much of imported misconception.

A few days after the above, a statement was published by Dr. Trent. He calls it epidemic sore throat. He considers the disease to be similar to the malignant influenza, which prevailed last winter in the same neighbourhood, with this difference, that now the force of the

disease falls upon the throat, instead of the lungs, thereby endangering suffocation. He does not think it to be croup, nor the putrid sore throat.

The remarks of this gentleman appear to be pertinent and philosophical. Whether the disease affects the head, breast, or throat, he proposes blood-letting. "The pulse at the beginning is small and contracted; one or two bleedings, until the patient feels faint or sick, will make it full and soft." A valuable remark. By moderating the violence of fever in the beginning, he thinks to avoid effusion of coagulating lymph on the brain, lungs, and throat. The next indication is to excite moderate perspiration; emetics, cathartics, blisters, &c. "These measures boldly and promptly applied, seldom fail to disarm the disease of all its terror." It may be observed, that whether the disease be epidemic angina or not, the above method may be most eligible. This last disease has been absent from this country about ten years.

On the 28th of November, at ten minutes past seven o'clock in the evening, was experienced a small shock of an earthquake; it lasted about thirty seconds. Whilst writing in my chamber the tremulous vibrations were perceived very distinctly, attended with rattling of windows, and window blinds; a rumbling noise in the earth, &c. Fevers are not so common at this time, as a few weeks past.

In the month of December a few fatal cases of spotted fever were heard of in this state; one in the south parish of Woodstock, three in Bridgwater, and one in Hartland. Also in New Hampshire, it is said to be prevalent

in many places, as at Acworth, Amherst, &c. proving fatal oftentimes in twelve or twenty-four hours.

Catarrhal fever has been considerably prevalent in December and the fore part of January.

A chronic swelling of the thyroid gland called goitre is occasionally met with. This disease is not so common as it was in the first settlement of the country.

The foregoing is considered only as an imperfect notice of diseases in this section of the country. Time and opportunity may render it more complete. Perhaps enough is inserted to mark the most interesting periods of sickness.

☞The author improves this opportunity to tender his grateful acknowledgments to those gentlemen, who have favoured him with materials for aiding the design of this chapter.

CHAPTER III.

A CONSIDERATION OF THE SEVERAL CAUSES OF FEVER.

INTRODUCTORY.

The acquired knowledge of mankind must be considered as progressive, not only as it respects individuals from infancy to mature age, but also as it respects communities in all ages; as may be learnt from authentic history. The progress of the arts and sciences, as well as the knowledge and cure of diseases, has been slow, and more or less subject to doubt and uncertainty, which has given occasion for much speculation and reasoning, as well as no small share of disputation, and even invective.

It is unfortunate for the healing art, that almost every other design of man has preceded this in point of attention and improvement. Self-preservation, the gratification of ease and sordid passions, such as avarice, usurpation, revenge, &c. together with the auxiliary means of obtaining these, has been, in different periods of the world, the great leading object in the pursuit of man. As a consequence of this, the attention of mankind, in the early ages, was directed to the investigation of the grosser properties of matter, and particularly to improvement in the mechanic powers; together with astronomical observations. Having advanced to a considera-

ble degree of attainment in these, and when the subject of physics, as it relates to animal life and disease, began to be attended to, every thing in the human economy was attempted to be explained agreeably to the laws of inert matter, and the gross action of mechanic powers. It was reserved for modern philosophers to suggest, that animal matter, whilst endowed with life, was governed by laws peculiar to itself, and to be explained upon principles of its own, independently of every other form of matter. With so many embarrassments to the progress of medical knowledge, and many others, that might be added, the science of life, health, and disease, has lingered long behind the rest.

The investigations of philosophers and chemists, within half a century past, have done much to enlarge our views of the great and secret operations of nature, in the material world, and unfolded to our perceptions, through the agency of the different gases, and electrical fluids, the most astonishing, as well as useful phenomena. But all these very active and subtle bodies may be considered as material and ostensible; their agency can be discerned, and, in part, demonstrated. With this acquisition to medical philosophy, we are but little better, than taught our ignorance of the deleterious principles, or invisible agencies, that affect the actions of living bodies. These have, hitherto, eluded the most elaborate researches, and microscopic observations. We have, therefore, to reason from the effect to find the invisible cause; that is, seeing that the living bodies of mankind are, under certain circumstances, thrown into commotion, with a derangement of the regular func-

tions, and attended with different effects, as weakness, pain, and death; we are induced by a sense of prudence, as well as curiosity, to find the principle and *modus operandi* of the agents, that have induced these hurtful changes. In these inquiries, the result has been very different among those that have been engaged in them; notwithstanding, many improvements have been made, and much light has been thrown upon the subject, by collections of facts. And perhaps, if the investigations and improvements could be arranged in suitable order, and put in some different and conspicuous point of view, they would appear less irreconcilable.

SECTION I.

Definition of hurtful Principles, and miscellaneous Observations.

Much ambiguity, perplexity and uncertainty have existed, in the mind of the reader, as well as in writers, on account of the vague and indefinite manner in which words have been used to convey ideas of the different kinds of noxious principles inducing disease. It will, therefore, be necessary to define particularly what we are to be understood to mean, when we use the words *contagion, infection, miasmata,* &c. The originals of these words convey nearly the same ideas; we shall, therefore, pay no attention to these, and continue to use them, because they have been so long used, and become familiar.

It will then be understood, that the word *contagion,* will be used to denote and specify that principle,

which is the effect of living organic systems, labouring under disease, whereby its like is produced, and may be eliminated from the diseased body in a *subtle gas*, or by *contact*, and produce its likeness in a healthy body, by its own generative and specific powers. The diseases, that belong to this class, are the *small-pox, chicken-pox, measles, hooping cough, mumps*, &c.

Infection will be understood, to denote that principle, which is the effect of living organic bodies, labouring under disease, wherein by an assimilating process, its like is produced, and may be communicated to a healthy body by *contact alone*, where its likeness is reproduced of a specific character. The diseases that belong to this class, are *hydrophobia, syphilis, psora, lepra*, &c.

Miasma will be used to express that principle, which is the effect of animal and vegetable decomposition and corruption on the surface of the earth, within the atmosphere of such decaying bodies, &c. eliminating therefrom in the form of a subtle gas or effluvia.

To these, it seems proper to notice, that the word *mephitis* will be used to express all those noxious principles, which, at certain times, and perhaps often, arise from the surface or bowels of the earth, and are unfriendly to living animal bodies.

The derivative, *pestilential*, will be used to express the deleterious properties, qualities, or essences, that may be generally diffused, and, at particular times, increased in the atmosphere; without meaning, by this term, to convey any idea of their specific properties.

The operation of some one, or a conjoint operation of some of the three last sources of hurtful principles,

will be assigned the cause of predisposition to those fevers, more strictly called *epidemic*, or *elementary;* such as *influenza, intermitting fever, typhus fever, dysentery, epidemic peripneumony, angina epidemica, spotted fever, yellow fever, plague, &c.*

As the diseases, comprehended under the influence of contagion and infection, do not come within the scope of this work, they will be but little noticed; as the principal design is to investigate what are denominated *epidemic* fevers; and these, it will be suggested, have their origin primarily, and individually, from a concurrence of the agencies of the miasmatic or mephitic and pestilential influences, in connection with exciting causes.

Perhaps some other word might be substituted in preference to *epidemic*, to express the character of the class; but, as we are not fond of coining new words, when old ones will answer, this will be continued as most agreeable to custom, and the common understanding of mankind; notwithstanding, they prevail sometimes, as *endemics*, or *pandemics*. Possibly the qualifying word *elementary*, would be more expressive.*

Miscellaneous Observations.

It may be observed here, there is some reason to believe, that all the contagious and infectious diseases, have their origin from some extraordinary concurrence of circumstances, or contact of contrarieties, favourable to the generation of new productions. When once

* Perhaps the noxious gases from decomposing bodies may well be called elementary principles, or not susceptible of any further decomposition, or division.

the assimilating process has commenced, it continues to progress in an individual, and convert matter, suited to its affinity, until the same principle is reproduced. If any one system should be contaminated, for instance, with the small-pox, or syphilis, it is an acknowledged fact, that this assimilating principle will produce the same result, *ad infinitum*, all circumstances being equal.

Like every thing else in the great system of nature, diseases may be subject to change their character. Some of the diseases of the present age, which stand high in the catalogue of human woes, were not known in ancient times. The history of the diseases of those times is rather imperfect, but from what we can learn, they were not altogether such as appear at present. The small-pox is of modern date. *Mead* says, page 308, who quotes *Riske* for his authority, " this year in fine (A. D. 572), the small-pox and measles made their first appearance, in Arabia. Allionius observes, that the gangrenous sore throat was but little known before 1610. The scarlet fever appears to be of still later origin.

The syphilis was not known in the history of diseases until about the year 1494, when it was said to be imported into Spain, from South America; others say from Holland. It must seem strange, if this disease were prevalent antecedent to this time, that there should be no account of it; it appears equally surprising that it should be taken from the natives, when they appeared to be strangers to it; and long after, Ulloa, in a voyage to South America, asserts, Book VI. that " the venereal disease is seldom known among the natives." A disease, that destroyed thousands before it was understood, and the best method of cure discovered, would, undoubted-

ly, have arrested the attention of the historian before the year 1494. Does not the origin of the kine-pox favour the idea, that contrarieties, or opposite principles, may produce a new disease? This appears to be produced from a filthy humour of the herpetic kind in horses, passing the process of organic diseased action in the cow. It is an hybride, possessing the specific character of the small-pox, in requiring a determined time to pass through the system, and an affinity to syphilis in being propagated *only* by contact. May it not be conjectured, that syphilis had an origin, in some measure, similar? This supposition appears to be confirmed by the circumstance, that both the Europeans and Americans were strangers to this disease before their intermixture. A disease having some resemblance to this affected the Spaniards, previous to having commerce with the Indians, called *burning*, which was said to require legislative restraint; more, however, from prudential and municipal motives, than from an alarm of its mortality.

There was a time, undoubtedly, when contagious and infectious diseases were strangers to this earth; they have had an origin, at different times, by a concurrence of causes unknown to us. It is sufficient for our purpose to learn their present character. Although the appearance of these classes of disease is not precisely the same in all seasons, and in all habits, yet they manifestly have a determined character, and are nearly alike at different times. Those, that are assigned to the class of *contagion*, require about the same term of time to run through the system now, that they did centuries ago; those of the class of *infection* are governed by the same laws now, as in former times.

It is believed there is little doubt, but that most, if not all, the diseases of these classes may be generated, in certain places and seasons, from a recurrence of the causes, which first produced them in former times; and that they spread from one person to another, and become epidemic more or less, according to the particular state of the atmosphere, favouring their propagation. But the productions of these kinds, are very rare, and their existence not attended with a satisfactory proof, which is sufficient to gain the full assent of the mind; the most we know of them is, that they are propagated by a seminal influence; and probably were instituted for the scourge of man.

With respect to those diseases, that we called *epidemic*, every term of experience serves to convince, that they are very mutable in their character. Where a concourse of symptoms designate the disease in popular language, the discerning physician often discovers a difference from those, which he has seen on former occasions, called by the same name. This is so manifestly the case, that hardly any two *epidemics* are said to be exactly alike; at any rate, they have not the specific character of the fevers from contagion. This difference is imputed to some variation in the predisponent principle. It is agreeable to the analogy, observed in the animal and vegetable kingdoms, to suppose, that even the diseases of the most specific character, become extinct, and that others are generated from the operations of physical causes. Species of animals did exist in former times, as we learn from authentic history, that have now become extinct, and those of the most perfect kind.

Certain insects and reptiles, are produced, on certain occasions, from a concurrence of circumstances unknown to us, which seem to be of a different character. They are creatures of a day, as it were, some of them real ephemeras, others of longer duration. All of the same species, alike in colour, size, and duration; myriads congregate together, and become extinct together. We have abundant reason to suppose, that these are the productions of certain elementary principles; the particular combinations of matter, however, are wholly unknown to us. An analogy is here presented worthy of our attention. As animals of a higher class and more determinate character, have the power of procreation, and of perpetuating their own species; and others come without any known seminal influence, but by a concurrence of appropriate elementary principles;—so certain diseases, of the contagious and infectious character, perpetuate their existence under all circumstances; whilst the *epidemics*, from a determinate opposition of elementary affinities, are produced only at such times, as favour their production; and are perpetuated only by the existence of the adventitious causes, which produced them.*

* There need be no suggestion here that such a sentiment is limiting the Providence of God. Whatever the manner may be, which he takes to bring about his own designs, his Omnipotence is made equally manifest. Our object is to try with Pope, to

"Look through nature up to nature's God."

If by the power of his word he is able to uphold "all things that are made," he is able to change their habit of existence, or give to matter the property of reciprocal action. All this should serve to magnify our views of His wisdom and power.

It appeared necessary to make the foregoing general observations, respecting the origin and perpetuation of the diseases, that we have thought proper to place under the classes of *contagion* and *infection*. They will now be dismissed, with the reservation, however, of referring to them occasionally by way of illustration.

We are fully apprized of the danger of classing diseases in the ordinary method of nosological arrangement according to the different types or states of the system, that have been assigned to particular diseases. This has been a source of infinite error. It was considered more appropriate to make only some general classifications of fever, founded on their remote causes. If one reasonable argument can be urged in favour of this mode, it will be full as much as can be said in favour of the common nosological arrangements. One important benefit in a classification by remote causes, will be to draw a discriminating line between those diseases that may have a foreign origin, and those that may have a domestic or elementary origin. The former may be transported from place to place, and may be communicated, under all circumstances; whilst the latter are susceptible only in certain places, or under certain circumstances. For the want of this discrimination, great discordance of opinion has prevailed among physicians; and much perplexity has arisen in different countries in publick and private concerns. From an apprehension, that certain diseases of an epidemic character are contagious, the sick have been abandoned to their fate by friends and physicians; the common acts of hospitality, and the necessaries of life, and a common burial, have been denied them!

Tedious and oppressive quarantines have been established to the great injury of commerce, and annoyance of individuals. It will not be denied, but that quarantines, of short duration, may be necessary, for the purpose of cleansing ships, wearing apparel, &c. of every impurity and fermenting principle, whereby miasmata may be produced; the same as in streets or houses; but forty days' detention for the purification of the bodies of men, is useless in epidemic fevers; and the restriction had its origin in a profound ignorance of the laws and principles that govern epidemic diseases.

The folly of adhering to nosological arrangement is conspicuous in this; that, almost always when an epidemic is present, the type of disease is different in different cases, and in the same case at different stages; for example, when an epidemic angina prevails, some cases appear more distinctly in the character of what is called synocha, and others more distinctly in that of typhus; and also the states of the system are often so blended between the two extremes, that it is believed the most acute nosologist is put at much strife with himself, to determine, which genus to place it in. It is divided sometimes, and the mean difference is called *synochus*. Dr. Cullen, with all his nosological ingenuity, would find no place for putrid fever; notwithstanding it was so common, and often appeared in intermittent fever, &c. His other works stand, perhaps, unrivalled. It may be added, that nosology would be, at least, innocent, if it did not lead the student to prescribe for names, and neglect the degree of morbid excitement and real character of the disease.

The disease should be treated according to what it is, and not according to any generic character it may have forced upon it. The spotted fever seems yet unaccustomed to the yoke of nosological restraint, notwithstanding the attempts to subdue it. Perhaps there is no disease in history, that is so variable in its phenomena, and requires such versatility of treatment. It is a conspicuous example of the variety of febrile action, and is well calculated to test the skill of the physician.

SECTION II.

Elementary or Epidemic Diseases not contagious.

As opinions have been circulated from respectable authorities, that certain of the diseases, if not all of those, that are assigned to the class of elementary or epidemic diseases, are propagated by a specific contagion from one person to another, it appears to be incumbent on the writer to assign his reasons to the contrary. They are the following.

The diseases of acknowledged contagion have a specific character, are of a certain duration, and affect people but once in the course of their lives.

Those of the epidemic character are more variable in their symptoms, are of uncertain duration, and affect people more than once in the course of their lives.

Diseases of the epidemic character cannot be propagated, except under certain states of the air, which favour their spreading.

The diseases, strictly called epidemic, are distinguished from the contagious by these circumstances; that

they are often only propagated at certain seasons of the year; whilst the contagious are but little affected by this; as also that the epidemic affects certain classes of people, such as natives, or strangers, or children, whilst other classes are not affected. The known contagions have no such respect to persons. Almost innumerable instances might be mentioned, from good authorities, as also some from present recollection, where diseases have arisen of a determinate character, such as dysentery, typhus, angina, yellow fever, spotted fever, and even plague, where one, perhaps three or six, in a family, have had the disease, and it then ceased, no others taking it from them.

According to writers of the best authority, persons affected with plague or yellow fever, upon being removed to a clean habitation, and out of the sources of contamination, never communicate the disease to others. This of itself might forever put the question at rest.

It is the character of contagious diseases to perpetuate themselves under all these circumstances. What has been said above may be applied to all the other diseases called epidemic. In the course of twenty-five years practice, I have seen most of the diseases called *epidemics*, prevailing more than once or twice; and I am ready to aver, that not in a single instance, could the disease be traced unequivocally to contagion. It is sometimes the case, that a whole family will have the dysentery or angina; typhus or spotted fever; but it is as often, that only one in other families will be affected. It is common for about half a family to have the dysentery, angina, or spotted fever. When the last

of these was epidemic in this place, in the winter of 1811, one half of my family, consisting of ten, had the disease; the others escaped. This would be a rare occurrence in small-pox or measles!

It is common for the attendants on the sick to be affected with the same disease, in the time of epidemics. They are undoubtedly more exposed to the exciting causes of disease than others; such as fatigue, cold, anxiety, and often depression of mind. With this liability to disease, it is rare, in the country, to find the attendants attacked much oftener than others, that have not been exposed; and one fact is certain—I have known people attacked various times with typhus fever, dysentery, angina, and spotted fever, when these have prevailed epidemically, who lived several miles from the abodes of any other human beings, in the woods; and who had not any sort of personal communication after the breaking out of the epidemic.

Some who deny the yellow fever to be contagious, still think typhus fever is so; but this mistake vanishes upon a review of all the facts. Yellow fever runs its course very rapidly; there is not time for the production of that material which has been denominated *idio-miasmata*, from fermenting excretions, &c. which is liable to happen in the protracted state of typhus fever.—But this is a circumstance of little importance, as the miasmata only give the predisposition to disease, and the exciting causes may be avoided, and cleansing may be practised to destroy the miasmata. But granting all that may be said, relative to the production of this kind of miasma; it does not possess the character of contagion; for the

time of its access is not defined. It has no determined time to run its course; it affects people more than once; and but few receive the impression who come within its influence. When it happens to invade a family, it is often the case that many have it; but perhaps not more than might be supposed to have any other epidemic, where contagion will not be insisted on; having respect to the length of time. This disease having been very prevalent in this part of the country, particularly from 1797 to 1809, has given me much opportunity to observe whether it be contagious. From much attention to this part of the subject, I am ready to say, that it has not appeared to be communicable from one person to another, any more than the other epidemical diseases; nor is it common for a greater number of the same family or attendants to be seized with it. Furthermore, it is a fact, that typhus, in common with all the pestilential or elementary diseases, may be shortened in its course. It may be wholly arrested and eradicated from the system in a few days, near the beginning of the disease, and sometimes, after considerable continuance. At the same time, left to itself, or aggravated by improper treatment, it may last for months. This is not the course of fevers from known contagion. See Chap. x. latter part sect. 1.

I have known persons affected with angina epidemica, more than once. In the case of a young woman at Bethel—she had the disease distinctly three times in the course of about twelve months, in the year 1796. In several other cases I have seen the disease twice, distinctly marked, in the same person. The disease of this season, angina raged very generally, and several aged

people had it, who said they had had it in former periods. A young woman observed the same in 1803. From these and other facts, as that of several persons in Bethlehem, being affected, first in the year 1793, and again in '94, (Med. Repos. vol. i. p. 525,) I am firmly of the opinion that the human system is resusceptible of the disease.

Angina maligna, or rather epidemica, described as appearing in New Hampshire, in 1735, "very few children escaped, for although the disease was very *infectious*, yet its propagation depended very little on *this* circumstance. It attacked the young in the most sequestered situations, and without a possible communication with the sick!" *Belknap's History.*

It is very common for persons to have the spotted fever more than once. Hardly any epidemic is more liable to relapse. This will not be controverted.

The plague is also produced and propagated by a pestilential state of the atmosphere, and is liable to affect people more than once. Mr. Webster is chiefly a compiler, but his authority is good: he says, vol. ii. p. 139, "it is admitted by all correct observers, that the plague may be received by the same person, times without limits. A person in Constantinople died of the twelfth attack; and many persons in the late plague in America have been affected two or three times."

Dr. Mosely declares from his personal observation, that the plague *is not contagious.**

* In an account of the late plague in Malta, as described by Dr. Faulkland, the symptoms of the disease seem perhaps well enough described, and which bear a strong resemblance to our spotted fever. It is ludicrous to notice the serious

One further suggestion may be attended to in this place. It is observed by many writers, if not all, that at the close of an epidemic season, the cause, whatever it might have been, becomes weaker, and those that are

observations, that the "British practitioner" makes on the contagiousness of the disease. (See N. E. Journal of Med. and Surg. vol. iii. p. 345.) He says, "whilst some persons are stated to have been attacked almost immediately after the noxious contact, others were represented to have continued well an incredible length of time before any symptoms became evident." This obsequious, but honest contagionist, says, "I have myself noted patients taken from the bosom of their families in the most distressing disease, and with perfect impunity to those with whom they had communicated;—children from their mothers, and husbands from their wives. Yet these families had used no kind of precaution whatever, not so much as an attention to common cleanliness." Many similar instances are related, which prove the disease to be governed by the same laws as other epidemics. He seems to think the infection is only received by contact, "directly or intermediately." The sick he thinks must not be approached without "an oiled silk dress." The laws are such, that the penalty for a physician "for feeling a pulse *even through a tobacco leaf*, with every possible precaution, was not less than fifteen or twenty days quarantine." What insufferable stupidity! Can it be a matter of astonishment, that no more progress has been made in the treatment of this disease, when we see physicians, magistrates, and the ignorant of all classes, combined against truth? There never has been any greater evidence given to the world of the contagiousness of the plague, than that of yellow fever; nor any more of this last, than that of spotted fever. Our grave author further says, he "knew *reinfection* take place three times in one individual." It is very likely the man had the disease three times; and we are willing to credit facts, and this may be one; but it is time that the absurd and fatal theories of the old schools were called in question.

affected generally suffer less, than in the first or middle periods of the epidemic season. This does not look like the character of specific contagion ;—it can be more rationally solved in a view of the state of the air, approximating more to a state of salubrity ;—and furthermore, the bodies of men have become a little more accustomed to the pestilential atmosphere.

It is believed, that with respect to the other diseases, named in the class of *epidemics*, no body will deny, that the system will be again and again susceptible of the disease.

If diseases of this class are propagated by a contagious principle, it is of a singular sort; not subject to the laws of any known contagion. But we hope to be able to assign their origin in a satisfactory manner to the candid and discerning, which will be our next attempt.

SECTION III.

Remote influences affecting the system which increase the liability to disease.

Although we cannot comprehend but a part of the agency of nature, nor explain the whole of the properties of matter, we can observe a fitness and agreement in many things, and make useful deductions for our own benefit and safety.

The properties of matter are, in part, understood, and we discern an attracting and repelling power in many of the objects around us. Perhaps these properties are the most conspicuous in the electrical fluid, and its different combinations, of any known principle.

The atmosphere, which is the medium in which mankind exist and move, is a compound of various constituent principles, subject to much variation, and is continually changing. Some of its parts contain principles absolutely necessary to the comfort and health of the body; whilst other parts contain principles actually and directly destructive to the health and existence of animal life. An excess of either of these, produces discomfiture in the system; and perhaps it is only from a due admixture of these qualities, that we experience that state of the atmosphere, which is found by experience to be friendly, and which we call healthy and agreeable to animal life.

The general connection between cause and effect is so admirably established, that this great mass of aërial fluid is well adapted to give energy, vivacity, and nutriment to animal bodies.

Notwithstanding these consequences are most commonly the effect of decomposition and new combination, that constantly go on in the principles of the surrounding atmosphere; yet these operations are sometimes, and not unfrequently, diverted from their regular course; and in proportion to every such deviation, an effect is produced by our atmosphere commensurate with the degree of derangement.

The mean temperature of this latitude is found by experiment to be $43\frac{1}{2}^{\circ}$. Suppose, for the present, by some change unknown to us, the mean heat should rise to $53\frac{1}{2}^{\circ}$. It will be admitted, that an astonishing change would take place on the surface of the earth and in its

atmosphere. Suppose it should be reduced ten degrees; the change on the other hand would be equally great, as will be admitted by all. These are put as strong examples; but it ought to be admitted that every degree of change, in other respects, beside heat and cold, even the smallest, will produce a proportionate difference. Again, if there be an attractive and repulsive influence between the sun, comets, earth, moon, and other planetary systems, as is asserted and even demonstrated by philosophers; and if these properties are varied, and their influence increased or diminished according to proximity and other circumstances; it forces a violent presumption upon the mind, that these alterations may produce a change in the atmosphere around us.

It will be acknowledged, with respect to light and heat, that we receive the greatest portion of these in the nearest approximation of the different planets to our earth, *cæteris paribus*. A comet becomes very conspicuous to our sight, when in its perigee; but we can discern nothing of it when in its apogee. In like manner we may conclude, agreeably to the laws of matter, that the attractive and repulsive powers of the heavenly bodies have their influence in other respects increased or diminished in proportion to their proximity to our atmosphere.

In the ordinary revolutions of the planetary system, of which our earth is a part, the order is very harmoniously established, and we have become familiar to the changes of different seasons of the year, by the annual circuit and inclination of the earth in its orbit; to the different phases of the moon in her monthly revolutions; and to the different phenomena of day and night, by the diurnal rota-

tion of the earth on its axis. These changes are manifestly very great, and have an indisputable controling influence in regulating and in producing the various seasons of the year, as respects the sun; in causing the ebbing and flowing of the tide, as respects the moon; in producing the diurnal revolutions in the human body, as respects the daily revolution of the earth every twenty-four hours, as is recognized by most physiologists. Certain diseases originate at certain seasons of the year, and stop at the approach of a different season, &c.

Many other effects of these revolutions might be noticed, but the present argument is to show, that our atmosphere, and the bodies of men, are greatly influenced by the established revolutions of the planetary system. As this is a point that will not be much controverted, with respect to the sun, moon, and earth, these will be hastily passed over to the consideration of some of the more remote bodies, moving in the vast expanse of ether, or rather, in the unlimited atmosphere of the electric fluid, extended through indefinite space. The principal of these, that may be considered as having the most manifest power in varying the attractions of our system, are the *comets*. The body, or nucleus of a comet, is said by astronomers to be solid, opaque, and possessed of a great degree of density, and capable of being heated to a great degree. They have a very highly electrified atmosphere, extending to a great distance. They move in very eccentric elliptical orbits. As the sun is the common centre of motion, and their circuits are in all directions from it, they are sometimes near our earth, and sometimes at a very great distance from it, in the remot-

est parts of their orbits. Their periods are very different; one having a period of 575 of our years; another 75 only; perhaps some have longer, and others shorter periods.

Their approximation to our earth in their perihelions, is different according to the direction of the central part of the orbit from the sun; so that in performing their revolution, some of them approximate nearer our earth than others. The comet of 1577 came within a million of miles distance.

It may be suggested by some, that although some of these wandering bodies are near to us, yet others are as far distant; so that the equilibrium in the great system may be kept up. This does not appear to be always correct; they are acknowledged to be very irregular planets by all astronomers, and do not have that equal balance in the solar system, that the other well defined planets possess; and if, on the great scale, the equilibrium is kept sufficiently well for the preservation of order, yet it must be granted, that variations of sufficient importance happen, to derange the attraction of the regular moving planets of less magnitude; and if this derangement is not sufficient to move the neighbouring planet out of its orbit, it may be sufficient to alter the state and condition of the surrounding atmosphere, and produce many and unusual phenomena, which might not have happened under other circumstances. On this presumption, or rather, on this fact, is founded the theory of remote circumstances in the planetary system, by natural cause and effect, producing changes in the bodies of men, which they are not accustomed to bear; and affect-

ing the tone of the living fibre, producing an approximation to disease, and, from slight circumstances, actual disease.*

In the year 1618, four comets appeared; and again for several years, there may be no appearance of any. According to *Riverius*, great sickness prevailed this year.

It seems to be agreeable to the principles of philosophy, to suppose that such great bodies, and electrified atmospheres, as comets possess, should have an influence upon neighbouring planets, more or less, in proportion to their proximity and magnitude. This is agreeable to all the laws of attraction and repulsion in other matter. But in these matters of weighty consideration, we must not found an hypothesis on supposition; we must have recourse to observation and fact.

* Notwithstanding the general causes operate in an extensive manner, producing the predisponent condition in the atmosphere of insensible qualities; yet we are, in a measure, influenced by the sensible qualities of the atmosphere, particularly by heat and cold. Although it is believed by us that more importance has been attached to these than they deserve, yet by operating as a change of climate may have some effect. The statement of Mr. Fitch, President of Williams' college, as published by Dr. North, makes it appear, that the summers of 1809 and 1810 were colder by 1° 75 through the whole summers, than the two preceding summers. This probably is the true difference, and agrees with the judgment of every one that these summers were colder. It may be noticed, that the spotted fever began more than two years before the first of these summers; and was most severe a year or two after.

It still remains a question to be decided, whether the absence of heat and accumulation of cold make the change in the living body; or whether the remote influences, which produce this difference in our atmosphere, may not rather be considered the ascendant cause?

To make a complete collection of facts from past ages is difficult on account of these phenomena not being all recorded. Perhaps enough are recorded to establish the position in the minds of the candid; if not, let further observations be made.

It appears from the researches of Mr. Webster in his laborious collection of facts on this subject, that, for 480 years before the Christian Era, the scanty records of those times give an account of thirteen comets only, and eleven of them coincide with periods of mortal sickness.

From the beginning of the Christian Era to A. D. 1799, the time of the author's writing, *one hundred and twenty-eight comets* are noted; and it so falls out, that the principal part of these are attended with earthquakes and pestilential diseases of one kind or another, in some part of the world.

History is deficient in not noting all the comets, and also in not recording the circumstances attending all of them; as whether they were such as passed the nearest to this earth, which were attended with the greatest disorder of the elements, and as connected with the most sickness; but there appears to be an astonishing coincidence of sickness, earthquakes, severe storms, &c. attending the periods of cometic approximation. It is not to be understood, that these effects are most conspicuous at the very time that the comet is most visible, or in its perihelion, but often some months, or a whole year, before and after its actual and visible appearance. For a comet that takes perhaps a century to run its course, this time may not be considered unreasonable for its effects to be manifested.

"All the comets, that have approached this earth, in their passage to and from the sun, especially those that have passed very near us, have been preceded, attended, and followed, by most extraordinary effects; as great heat and drought in summer, and cold in winter; deluging rains, violent tempests, and unusual tides. These we may consider as the constant and certain attendants on comets. They occur so uniformly with the appearance of those bodies, and for some months preceding and following, as to leave no room to question the influence, from whence they proceed."

"These remarks are justified by our own observations. They were remarkably verified in the comet, the meteor, and brilliant halo, which marked the commencement of the last series of epidemics in 1788 and 1789. Riverius is express to the same point. He asserts that comets never appear without being followed by epidemics and pestilential diseases, and various changes in the physical world. He instances that of 1618, in his own days. The observation is verified by the testimony of all ancient, and by a uniform series of modern facts."

"The order of events is exemplified in the epidemic periods of 1769 and of 1782. In the first period, excessive drought, during the approach of the comet in 1769—failure of crops, famine, plague, and insects, in 1770—Volcanoes, earthquakes, and tempests in 1770 and 1771—Catarrh and measles in 1772, then for several years, angina, putrid fevers and dysentery."

"In the period of 1781 and 2, catarrh began the epidemics. In 1782 an universal failure of water and crops in India and Egypt;—in 1783, volcano, famine, measles,

angina, and plague—in 1784, a comet, followed by tempests, &c."

The above is taken from Mr. Webster's second volume. To do justice to the subject would take more time, than is allotted to this part of the subject. For a further review of this subject, reference may be had to his first volume up to the year 1799.

Two *comets* have appeared since the commencement of the present century. It is very much regretted, that a more perfect record of the phenomena of their approximation is not at hand. This part of our duty has hitherto been neglected, but it is hoped they are preserved by some faithful historian. A few circumstances only can be mentioned here.

In October 1807 a comet appeared, not, however, of the largest apparent size.

The summers of this and of the preceding year, were colder than common. This has been imputed by some to the total eclipse of the sun, which happened on the 16th of June, 1806; but may, with much more propriety, be imputed to the derangements made in our atmosphere by the approximation of the comet, which came to our perception the year after.

In 1807, the 14th of December, an extraordinary meteoric stone fell, at Weston, in the state of Connecticut. The explosion of this stone in the air, and as seen by its light above the clouds, a little before day light in the morning, was compared to the report of cannon. Three reports or explosions were heard, attended with flashes of light and scintillations. The fragments fell several miles distant, making different sounds in passing the air.

and striking the ground. The phenomenon was astonishing to the beholders. One part of the stone, which fell upon another stone, and was fractured, was adjudged to weigh 200 pounds!—another 35;—another 25, and so on to the smallest fragments. See the report of Messrs. Silliman and Kingsly, Med. Repository, Hexade 2, vol. 5th, for a more particular account of this interesting phenomenon.

In April, 1808, about six months after the first appearance of the comet, meteoric stones fell in Italy; and in October following, in France, incrusted with ice!

In 1807, April preceding the comet, the spotted fever first appeared in this country, in Connecticut.* Fevers of different characters were prevalent in different parts of the country. In September, spotted fever at Deerfield, New Hampshire.

In August, 1807, about two months previous to the appearance of the comet, the United States of America were assailed with the severest and most universal influenza ever known in this country. It extended from Georgia and the Mississippi to Canada. It was heard of in England and France. It assumed in some cases a pneumonic affection; and in the latter part of its continuance, after cold weather commenced, it was called pleurisy.

In 1811, in autumn, about four years after the last, appeared another very brilliant comet.

The summers of 1809 and '10, were uncommonly cold. Spotted fever prevailed, in some places, in 1809, and

* A short appearance at Medfield, Mass. in 1806.

more frequently in 1810, particularly in Massachusetts; and in the winter of 1810–11, in Vermont, &c.

In July, 1811, about three months before the comet became visible, rains were excessive. The greatest floods ever experienced in this country. The rains continued a considerable part of the month; it sometimes, particularly on the 22d, fell in torrents. It is said, White river rose four feet perpendicular, in less than half an hour. Queeche river about the same. Great damage was done by the flood, in the destruction of bridges, mills, and some live stock. The greatest fall seemed to be near the centre of the state, upon the mountains; the water ran in rivulets where none is accustomed to run. About twelve miles north of this, in Stockbridge, the rain fell so heavy upon the top of a high and dry mountain, adjacent to White river, that it formed a channel from the top of the mountain, and took in its course trees, stones, and earth, down the whole steep of about three fourths of a mile across the turnpike, and formed an island in the river. This I have often seen, and it may be seen at this time. The effects on the west side of the mountain, were equally extraordinary in the neighbourhood of Otter creek. More damage was done there in property, than on the eastern course. Large tracts of meadow land ruined by being covered with earth and stones, &c. The circumstance of the summers of 1809 and '10, being 1° 75 colder than the preceding, should be kept in view, as stated by president Fitch.

The spotted fever raged with its greatest violence in Vermont, in Canada, and the adjacent states, about six

or eight months previous to the appearance of this comet. It again raged in the winter following, being that of 1811–12, principally in such places, as were most exempt the year before.

The winter following, being that of 1812–13, was remarkable for two circumstances. One is the fatal and wide spreading epidemic peripneumony, which is in the remembrance of all; and the other is the numerous earthquakes in the southern states. Tremendous earthquake at Venezuela, March, 1812.

Whether there may be any connection between the approximation of comets, and pestilential diseases, this is certain, that the period of general and mortal sickness in the United States of America, has substantially and very correctly coincided with the approximation of these two comets; and the quantity of sickness, in the two periods, has been about in proportion to the visual magnitude of the comets, and the length of time they were visible.

We do not admit a mysterious and unconnected agency in these operations; it is highly probable that these changes are brought about by the usual operations of natural cause and effect. The approach of comets and other heavenly bodies, produces a change in the attractive powers, and other principles, which serve as connecting mediums between the respective bodies. It is presumable, that the electric fluid is a principal agent in all these phenomena. It may be considered as the most widely diffused, and universal principle in nature, capable of producing the most astonishing operations, and with the greatest rapidity. If there is any universal principle

in nature, it must be this. In its different habits of existence, it exhibits different phenomena. In the vapour of the clouds, it produces lightnings and thunder, and all the majestic phenomena attending these sublime, aërial exhibitions. In the polar regions, it shows its presence in the wide spreading luminous sheets of the *aurora borealis*. It is the efficient cause of devastating tornadoes, as well as deep convulsive earthquakes; and luminous appearances in our atmosphere.

Possessing a facility of changing its habits of existence, and uniting with other subtle gaseous principles, it becomes the source or prime agent of light and caloric, giving activity to all material substances on the surface of the earth. It points the mariner in the gloom of night through the trackless ocean by a peculiar fixed habit of existence in the magnetic needle. A new habit of existence has lately been discovered, which has made philosophy acknowledge her ignorance of some of the different compounds of this pliant principle of nature—the *galvanic fluid*.

This particularly shows an affinity, and near relationship to that principle, which is the active agent in living animal fibres; and here, if further speculations might be indulged, would be suggested the idea of what is called nervous fluid, nervous influence, &c. being a peculiar habit of existence of the electric fluid, suited to the peculiar circumstances of animal texture, producing irritability and motion. Many of the phenomena of living animals in health and disease seem to warrant such a conclusion. With respect to the body, the celerity of all the delicate and compound motions, discover much ana-

logy to this very active fluid. In disease, this nimble vivifying agent is disturbed in its regular course. Actual shocks are experienced; disease invades like a stroke; convulsions of some or all the functions ensue; life is destroyed; or the vital medium is restored, constituting health.*

But speculation has led us beyond our design. Let us return for a moment from descanting on this mote of creation, man, to the great operations of the all pervading principle—electricity, in the vast region of the planetary system. Let us behold there the order and harmony, which prevails, by the agency of this active energetic fluid, acting steadily by laws, given it by the great

* The spontaneous decomposition of animal bodies cannot be accounted for on any other principle than that of a surcharge of electron. Many instances are on record, where people have been found not only dead, but burned to a coal, or oily cinder; and under circumstances, which could not be imputed to any operation of common fire. See Tytler on Plague, &c. where various instances are noted. Also Med. Rep. Hex. 1. Vol. v. p. 460. Also the same volume, where an instance happened at Washington, in which Mr. Dayton's silk stockings, &c. were found burned to tinder in the night by his bed side.

Many other instances of a like nature might be noted. Add to this the fact, that it is common for people in usual health, or at least, with a slight indisposition, to experience shocks in the head, very similar to that of electricity.

This property in living animal bodies, has received the name of animal magnetism by Mesmer, and after him Puysegur; and is most conspicuous in disease. The facts and experiments relative to this extraordinary property in animal bodies are too weighty to be denied with much assurance. Is not this same property put in exercise in the astonishing, and well proved operation of serpents charming birds?

First Cause. It seems to be the *vinculum*, or connecting medium, of the fragments of universal nature. By the powers of attraction and repulsion, which this fluid possesses, pre-eminently above all others, the planets are kept in their orbits, and perform their revolutions; even the comets are called from their distant wanderings, to revisit the sun, and become visible to the inhabitants of our earth. A constant circulation of this fluid is kept up between the different planets, not strictly uniform. In some states and conditions there is a *plus*, and in some others, a *minus* proportion of this fluid; and this unequal balance may be considered to be the very exciting cause of all the stupendous operations of all the apparently preturnatural phenomena, which are discoverable in the natural world.

From a disproportion of this fluid, and a greater collection of it in the clouds, ascending from the earth, in the form of exhalation by heat, these are overcharged in proportion to the earth. The consequence is an explosion from the clouds to the earth to restore the equilibrium. This is effected according to the known laws attending the motion of this fluid.

Again, the earth becomes overcharged in certain circumstances of our atmosphere, unfavourable to the elimination of this fluid; it vents itself by earthquakes, eruptions from volcanoes, mephitic vapour, &c.

These great operations of this very elastic fluid, have an effect upon the atmosphere, which seems to be the great highway of its movements. It appears to be the immediate cause of hail, tornadoes, meteors, &c.

The combinations of this fluid are only in part known to us; we have much reason to believe, that it is capa-

ble of a great variety of combinations, and its different habits of existence, and connection with some of the other gaseous principles, in and around our earth, may produce an etherial fluid of a particular kind, unfriendly to the health of animal, and even vegetable bodies. This is offered as conjecture; it will only help to extend our minds to notice the extreme tenuity and activity of those gaseous principles, that may be blended with the air, in which we move, and affect our bodies, by what has been denominated, by some of the greatest physicians of former times, "occult qualities."

It will not be contended, whether an actually new product is added to our atmosphere, or whether a change of attractive and repulsive powers, has caused a different state of combination in the constituent principles of our atmosphere. It will chiefly be insisted, that a change has taken place, constituting what has been termed "a *pestilential state of the atmosphere;*" and that, this state of air is brought about by changes, produced by the conjunction and opposition of the planets, through the medium of that permanently elastic, and non-gravitating fluid, electricity.

These sentiments are advanced with a considerable degree of confidence; and it might be expected, that they ought to be connected with more evidence to substantiate them.

This attempt, in order to be explicit, would lead us far beyond the limits assigned to this part of our subject. It is hoped, that a spirit of free inquiry, and candour, will be exercised by all investigators of these subjects, "to discern the times and seasons, and see if these things are so."

They lead to the most important conclusions in medical theory and practice. It will, however, be observed in general terms, as proof of these observations; first, that a great part of the hypotheses advanced, are strictly consonant to philosophical principles, supported by the authority of the greatest adepts in the science.

Secondly, the reality of the immediate influence of the planets, especially comets, is warranted by fact, in this, that great changes are observed in our atmosphere and earth at their perihelions, or approximation to the sun; and that these approximations are not only attended with universal drought, storms, winds, meteors, &c. in the atmosphere, but also with unusual earthquakes, and volcanic eruptions from the earth; and a pestilential state of the atmosphere, producing much mortality in the animal creation, in co-operation with the conjunct, or local causes, to be mentioned hereafter.—*See Webster's Collections*, also, *Diembroke, Sydenham, Seneca, Van Helmont, Van Swieten, Boyle, Mead*, &c.

Thirdly, the opinions of the ancients are entitled to some respect. Their reasonings were not, by any means, satisfactory, often involved in mystery and superstition; notwithstanding, they were great observers of facts and uncommon occurrences. They bestowed particular attention on astronomy, and the effects of the heavenly bodies upon this earth and its inhabitants. They seem generally to impute the origin of epidemic diseases to planetary influence. Possibly the moderns may err as much as they, in too much neglecting these influences, and even ridiculing them.

It may be considered that planetary influence, previously noticed, is of a widely diffused nature, extending

over great portions of the globe, and perhaps the whole of it. The cause is common to the whole earth, but is restricted, partially, so far as relates to the pestilential influence being ushered in, through the medium of an earthquake, or volcanic eruption. Even in this case, it commonly only gives a very general pestilential influence along with the extensive and wide-spreading causes, which co-operate in their production. These planetary and terrene influences, are to be considered as giving to our atmosphere that property or pestilential condition, which has been denominated "*occult qualities;*" giving a predisposition or aptitude to disease. This state of our atmosphere must be considered to exist, at all times, in a greater or less degree. It is permanent, not affected by heat or cold, dryness or moisture, winds, or any thing else that we know of, unless by a cause as extensive and energetic as that which produces it.

And here it must be understood, that the foregoing assignable planetary influences only serve to augment the power of these *occult* qualities, or pestilential condition; and furthermore, that this general state, or pestilential condition of the air would seldom, if ever, produce disease in man, unconnected with the numerous *local* or conjunct causes; and that these, the general and local causes, exert their hurtful operations on the bodies of mankind when brought into action by some exciting cause.

SECTION IV.

Local or conjunct Causes.

A proper attention to, and understanding of the operation of these several causes, will explain many circumstances, relative to the laws of epidemic diseases, which have perplexed physicians in all ages. Our attention must first be turned to a consideration of what are denominated local or conjunct causes.

The local causes of epidemic diseases are very numerous. No part of the earth is free from them in one shape or another. What makes the difference of health and disease, in different places on the surface of the globe, may be considered, in a great measure, to be a freedom from, or more exposedness to, the local causes, which will be considered under the character of *miasmata* and *mephitis*.

Miasmata, as before defined, are the production of corrupting materials on or near the surface of the earth, whether vegetable or animal. It is not our design to enumerate all the varieties of local causes, but only to point out some of them, and pursue the connection of our theory.

They may originate from animal putrefaction or decomposition; hence we hear of the bodies of men in sieges, and on other occasions of great dearth, producing some epidemic disease. Instances of this kind might be multiplied. Large bodies of fish have been said to produce fevers by corrupting and giving a deleterious quality to the surrounding atmosphere. The same has been

said of insects, &c. In short, all kinds of animal substances, in a state of slow or rapid decomposition, afford a noxious gas, that under all circumstances, predisposes the body to disease, and, under certain circumstances of excitation, actually induce it.

The excretions of the human body, particularly the matter of perspiration, when suffered to be retained in the clothing, bedding, or other absorbing bodies, and subjected to a certain degree of heat, about 96°, are a fertile source of miasmatic productions. This kind of hurtful principle is generated in jails, hospitals, workhouses, ships, &c. where cleanliness and ventilation are neglected.

A heterogeneous mixture of animal and vegetable substances, subjected to fermentation by the heat of the sun, with only a small degree of moisture, is thought to produce miasmata of peculiar virulence. This kind is produced in large cities, about the wharves and streets in the warm season of the year.

The putrefaction of vegetable substances, lying on the surface of the earth, in certain degrees of heat and moisture, affords this hurtful principle in abundance, and of a peculiar character. Perhaps there is always some portion of animal matter blended with these; such as reptiles, insects, &c. which may increase its virulence. This is often found in warm seasons, in low, stagnant waters and partially drained ground, as marshes, ponds, savannas, &c.

Perhaps no part of the world is exempted from some productions of the miasmata, where animal and vegetable substances are decaying, connected with heat and

moisture. It will be understood, that these productions, *cæteris paribus*, are found most commonly, and in greatest abundance, in warm climates. It may be useless to be more particular on this at present, or to produce any authorities to substantiate the facts, relative to the production of miasmata.

A more difficult task is now assigned us; and, hitherto an almost unbeaten track to pursue; in assigning *mephitis*, or a deleterious principle issuing from the earth, as a conjunct cause of *epidemic fevers*.

The subject is rendered particularly difficult, on account of the invisibility of the object of discussion; its sudden and transient progress, and, being blended with the common atmosphere, is dissipated, and often only discovered by its effects, and what we can learn by negative evidence. It is, however, confidently believed, that enough is known of this enemy to the health of man to warrant the existence of such vapours, and their deleterious effects.

Mephitic exhalations are sometimes produced in abundance by the great terrestrial convulsions which take place in earthquakes. They will be considered as having local origin, and issuing from particular caverns near the surface of the earth; and also from the surface of the earth in a silent vapour, damp, or exhalation.

According to *Mead*, mephitis comes from a Syriac word which signifies "to blow, or breathe." He mentions several places where these gaseous productions issue from the earth constantly, and, as reported by other writers, such as *Cicero*, *Galen*, *Strabo*, and others; and

then gives a description of the poisonous vapour of the famous grotto, Del Cani, in Italy, known to every body.

Similar facts are noticed by a variety of writers, as happening in different countries and places, such as "mines, pits, and other subterraneous places. They are sometimes met with on the surface of the earth." *Mead.*

According to Chaptal, it is found at the well of Perols, near Montpelier; in that of Negrae in Vivarais; on the surface of several hot-springs, and on the surface of the lake Averno, in Italy. Birds that fly over this lake drop down dead. All the before mentioned exhalations are suddenly destructive to animal life, when sufficiently concentrated. It is very probable that the mephitic vapour of our wells, which is so frequently fatal to those who enter them, issues from the earth. Some facts warrant the conclusion that they are suddenly produced.

It may be objected, perhaps, that these vapours are nothing but fixed air, or carbonic acid gas, and that it does not mix much with atmospheric air, but keeps near the earth, &c. This may all be granted; but they show that noxious exhalations may issue from the earth, even possessing a greater specific gravity than air, and this gives ground for a strong presumption, that vapour of greater tenuity may come from the earth, and blend with the air, hurtful to its salutary qualities, and that they may be conveyed to a great distance.

The history of meteoric stones warrants a conclusion, that even mineral particles may be elevated from the earth, in the evaporation of water from its surface. Perhaps these mineral particles of great tenuity, are assisted in their ascent by an electric magnetic in-

fluence, accompanying the process of evaporation; and when elevated to a certain distance, forty or eighty miles, are disengaged from their guides, unite by an elective attraction to particles of a similar nature, and at length, fall to the earth by their specific gravity of different degrees of density. They have been noticed in various parts of the world, and unquestionably a few only have been found of the great number that may be supposed to have fallen in different ages, and in unfrequented places. Some are small and have been found incrusted over with ice or hail; others larger, as the one which burst over Connecticut, in 1807.

Chymical analysis has demonstrated, that these stones contain different substances, such as flint, iron, nickel, sulphur, magnesia, calcareous earth, &c. These phenomena are noticed to enlarge the mind, to help us to conceive, that if these ponderous bodies can be raised in the atmosphere, vapours of a deleterious quality, and more volatile, may find a ready ascent and suspension in the air.

The hydrogenous gas is common even in this country, issuing from certain springs, and taking fire when ignited, and keeping up a perpetual blaze.

It is not the visible vapours or exhalations, that have, in various periods, been discovered to arise from the earth, and produce diseases, which we consider as the most important and deleterious; yet some of these will be mentioned. But it is a silent and invisible vapour, that may be presumed to arise along with the exhalation of water, and perhaps elimination of electricity from the earth, which, at certain times, when the general morbid influence prevails in the air, shows its hurtful effects in predisposing the body to disease.

"In autumn, 1753, after a dry season, arose in Rouen, the chief city of Normandy, a thick fog with the smell of sulphur, which increased to that degree, that in the evening, lights could not be distinguished at any considerable distance. It did not wholly disappear till the next day. It was more dense in some streets than in others.

In three or four days after, began an epidemic sickness, which seized both sexes with chills, lassitude, loss of appetite, slight pains in the arms and legs. These symptoms were followed by bilious looseness, nausea, and vomitings. Most of the sick bled at the nose frequently in small quantity. The headache then became violent, with a small hard pulse—a high fever followed. The region of the stomach and hypochondria were tumefied; this symptom was succeeded by a tension of the belly, and a slight delirium followed. The tongue was brown or black, but moist; sometimes with green ulcers or aphthæ. The patient died on the 5th, 7th, or 11th day; but not in every case. Some were thirty or forty days in recovery; many were left with a puffiness of the face, hands, and legs.

In some other parts of France appeared peripneumony and inflammation of the pericardium, which was called a new disease." *Phil. Trans.* vol. xlix.

Forestus relates, that an epidemic sore throat in Alemar, in 1557, suddenly invaded 2000 persons, of whom 200 died. He ascribes it to a vapour, for the disease was preceded by thick clouds of an ill smell. See *Van Swieten*, vol. xvi.

"Mazery relates that the black pestilence, in 1847, arose in China from a vapour, which burst from the

earth, with a smell most horribly offensive." This fact is cited by Boyle, vol. v. in proof that pestilential diseases spring from vapours, evolved from the earth. This author supposes, that new diseases may be generated by vapours. A disease raged in many places about this period; and it was estimated that one half or two-thirds of the human family perished in about eight years."*

Seneca relates that a vapour in Campania, caused by an earthquake, destroyed 600 sheep. Eruptions of volcanoes have been preceded many weeks by a visible fog or vapour suspended over the mountains, as happened before the great discharge of Heckla, in 1783. If a sensible vapour can be extricated from the earth, why may we not suppose an insensible vapour may be also extricated?

It is asserted by historians, that earthquakes have been preceded by a perturbation, a discolouration, and even stench in the water of wells and springs. The most reasonable explanation of the death of fish, at certain seasons, especially in epidemic seasons, is, that it is effected by a deleterious vapour, extricated from the earth, contaminating the water, and rendering it unfit to sustain animal life.

A hurtful vapour, supposed to contain an acid, was extricated from the earth by a bursting of fire in Iceland, according to the account of Mr. Holm. Hail and

* "In London, 50,000 were buried in one grave-yard. In Norwich, England, died about the same number; in Venice, 100,000; in Lubec, 90,000; Spain lost two-thirds of its inhabitants; and in Asia, 20,000.000!" *Webster's Coll.*

rain followed of so corrosive a quality as to destroy men and cattle. The effects were felt as far as Norway.

From the numerous facts, serving to prove that noxious vapours arise from the earth, a few only will be noticed. One, much in point, mentioned by Dr. Priestley; taken from the history of the formation of an island in the Archipelago, in 1707, during a volcano. "The sea of the gulph in which it was formed, from being of a bright green, assumed a red colour; afterwards it was of a pale yellow, and it was accompanied by a great stench, which affected the island of Santorin, at the distance of several miles, in such a manner, that the inhabitants were seized with acute pains in the head, and violent vomiting. The vapour blackened silver and copper."

In various periods, a sort of corrosive property is manifested to exist in the air by the circumstance that metals are apt to rust; vegetables are blighted, &c. It is very probable that an acid is predominant; Dr. Mitchell considers it the septic acid; but it is not the present design to particularize.

Numerous instances might be adduced to illustrate the fact, that visible or demonstrable vapours do sometimes arise from the earth and mix with the common air, causing it to be less suitable to sustain animal life. It is probable, and indeed it is philosophical to suppose, that there is almost constantly arising from the earth exhalations of great subtlety, which serve to render the air less fit to sustain the regular functions of the animal economy.

"Unusual darkness broods; and growing, gains
The full possession of the sky, surcharg'd
With wrathful vapour, from the secret beds,
Where sleep the mineral generations, drawn.
Thence nitre, sulphur, and the fiery spume
Of fat bitumen, *steaming on the day*,
With various tinctured trains of latent flame,
Pollute the sky." THOMSON.

APPLICATION.

We shall now endeavour to make a more particular application of the foregoing facts and reasoning. It being granted that a general state of atmosphere prevails at one time different from that at other times, and that this is very extensive, and is brought about by very remote and general causes, constituting what has been denominated by physicians a *pestilential* or *inflammatory* constitution of the atmosphere; we shall signify that it is very doubtful whether this of itself, is ever sufficient to induce disease without the presence of local or conjunct causes; and also that the local causes seldom produce diseases, without the concurrence of the general pestilential cause.

The general cause may be considered as always present in some degree; hence sporadic cases of disease are here and there met with. But in certain other conditions it is manifestly more abundant; and it is this high state of existence that the local causes, by a kind of co-operation with this, discover their alarming influence in the production of diseases.

When the general cause is absent, the local causes may be considered as harmless; for they continue near-

ly the same in different places and seasons, without the prevalence of disease, unless aided by the general cause. Hence the miasmata of the streets and docks of cities, and also that of prisons, &c. become obnoxious only in certain seasons, and in such seasons as manifest a general morbid constitution of the atmosphere, by a prevalence of sickness in different places, exposed to different local causes.

It is, therefore, agreeable to the history of those diseases called *epidemic*, that when one prevails in a certain place, the same or some other generally prevails in another place; and these are diversified according to their several local causes; and also if the local causes are absent, the people of that place are exempt from sickness. Numerous facts throughout the world, and especially in America, will serve to substantiate these positions.

It has been noted by writers of the history of diseases, that there are sickly periods, when the inhabitants of a great extent of country, and perhaps the whole world, will be assailed with mortal sickness. This sickness is usually of different kinds; in some places, plague,—in others, yellow fever,—in others, intermitting or remitting fevers,—in others, dysentery, typhus, &c.

All these diversified states of disease depend upon the difference, that may be supposed to exist in the local causes. It is beyond the present discriminating knowledge of man to point out in what this diversity consists, as respects the identity of the several local causes;—but this we are confident of, that there is considerable diversity in the several local causes. They have different origins as proved before, and exhibit different grades

and localities of disease. When the general atmospheric cause is present, a slight local cause may form a strong predisposition to febrile commotion. It is observable, that at such times, chronic diseases are more obstinate, and more certainly fatal. Slight injuries, such as wounds, bruises, burns, &c. are apt to be more troublesome, than in a healthy state of the atmosphere. And again, if such accidents happen to a person, when both the general and local causes are present, he is almost certain to have the prevailing epidemic. In this instance, they act as exciting causes to be noticed hereafter.

This pestilential state of air is so manifest when it prevails in any region, that it is a common observation among all practitioners, that it gives a sort of character to chronic diseases, and predominates in other acute diseases in such a manner as if compelling them to assume its characteristic symptoms.

It has been heretofore a matter of astonishment to those, who hold to the contagiousness of epidemic fevers, that their favourite contagion should be confined to their own villages; and various subterfuge arguments have been resorted to in order to make good the proposition;—whereas by looking at the true and rational proofs of the origin of these different kinds of diseases, we see their laws unfolded in a just and proveable manner, to the satisfaction of the true seeker after medical science.

If, instead of scrutinizing old shoes, rags, &c. to find imported fomites, and accusing foreigners of transporting epidemic diseases, the zealous inquirers after truth

had exerted their talents to discriminate and render innoxious the local causes of diseases, the science of physic would have become less reproachful to its cultivators.

If a person has resided in a place exempt from any particular local cause, although not exempt from the general cause, and now should migrate to a place contaminated with a local cause, he will be more likely to receive the impression of disease, than one that has always resided there, on account of the change being sudden and great. It is a law of the animal economy, that the system will bear preternatural changes and impressions to a surprising degree, without essential injury, provided the impressions be applied very gradually.* Hence it is that the natives of any place are not

* Since writing the above, the instance of Mr. Morley in England, as published in the public prints, appears to be in point. Mr. Morley, his wife, and three children, removed to a house, that had been tenanted, until two days before, by a family for twelve years, without any inconvenience. The day after they entered the house, in the afternoon, the doors were broken open by the neighbours, who found the whole family in bed, in an insensible condition, and the oldest child dead. The father, the mother, and the next oldest child lived a day or two and died, the youngest only survived.

Upon examination of a jury, it appeared that "a great quantity of rubbish from potter's ovens, consisting of cinders, corks, old moulds, &c. had been thrown together adjoining the house, and new coals from the oven repeatedly thrown on them, kept the whole in a state of fermentation, although now covered with snow. From these was extricated a "noxious vapour," which penetrated the walls of the house, when the wind favoured it. Lights were extinguished in the cellar, and very quickly if held near the wall.

so liable to epidemic diseases as strangers who visit those places. The exceptions to this proposition are but few; when such exceptions do happen, they may be explained upon the principle of peculiarity of susceptibility meeting with a peculiarity of local cause.

A ship coming into a harbour from a long cruise with miasmatic effluvia on board is precisely the same, as for a stranger to visit a city, containing the same thing. The city is supposed to be free from miasmata, but the ship giving a miasmatic atmosphere, makes a strong impression upon those, who have not been accustomed to it; and the consequence is, that the inhabitants of the city, who go on board, suffer ten to one, perhaps, to what the crew suffer.

Again, if prisoners be brought from a close and filthy confinement of long duration, where their bodies and clothing are highly contaminated with miasmata, before strangers, who have been accustomed to a pure state of air, and perhaps in a close and crowded room, as happened at Oxford, in 1557, the miasmatic effluvia may have a powerful and dangerous impression upon those strangers; whilst the prisoners will escape, from a very gradual and habitual application of the cause which is sufficient to excite disease in others.

Various instances of a similar nature might be brought. All these facts have served to mislead the contagionists; they insist that these facts prove conta-

It will be noticed, that the materials had lain here a long time, but the former family received no injury in consequence of a *gradual* impression.

gion; when in fact, those who are so unfortunate as to suffer in this way, never communicate the disease!—The suddenness of the impression sometimes acts as an exciting cause. *See Sect. 6. of this Chap.*

A fact must here be kept in mind, that it is under *certain* circumstances only, that these local causes produce such alarming effects; namely, where the general morbid state of the atmosphere prevails. For the want of this discrimination much confusion has arisen. It is common for corrupting materials to cover the streets of cities; it is common for filthy ships to arrive in ports; it is common for long confined filthy prisoners to be brought before magistrates;—it is common for the country to be interspersed with mill-ponds and standing pools of water;—it is frequently the case that thousands of carcases of men and beasts putrefy on the surface of the earth; and all this without producing any disease among the people. But it must be noted, that these exemptions take place in the absence of the general morbid constitution of the atmosphere; and also at the very time, that the inhabitants of the earth are most free from other epidemic diseases.

Upon a review of these facts, it seems demonstrable, that in order to produce epidemic diseases, it is necessary that the general and local causes should both be present. This position, unquestionably, holds good, as it respects all those epidemics that depend on a local miasmatic cause.

But the matter appears a little more doubtful, as it respects those diseases, that have been strictly denominated *pandemic*, or affecting a great extent of country

suddenly, and at the same time. The influenza is the most conspicuous example of this. To this perhaps may be added the severe peripneumonic fever in Vermont and the adjacent states in the winter of 1813;—as also many other diseases, which have prevailed in different countries in different periods.

If there are any diseases, that depend wholly upon a general cause in the atmosphere, it would appear that the *influenza* was one of these. Our limited comprehension of the great operations of nature, forbid that we should rashly decide on a question of such magnitude. It is well ascertained, however, that influenza generally precedes diseases of greater magnitude; and it is often the first harbinger to warn us of approaching danger. Although the more important diseases, which are to follow, do not succeed for several months or a year after, they are pretty sure of coming in the course of the sickly period, which commonly lasts two or three years.

This circumstance discovers the influenza to be strongly connected with the general pestilential constitution of the air, and as depending upon a change in the atmosphere; but as it is transient, and is discontinued, whilst the same general constitution prevails, and also, as it seems to be progressive as to place, although pretty rapid; we are induced to assign it a conjunct cause. What this may be, cannot be asserted with any confidence; but, for the present, we shall suppose it to be *gas* of some kind or other. It cannot be assigned to any of the super-terrene miasmata, as their influence is never known to extend to any considerable distance. We are therefore forced to look for it among the sub-

terrene exhalations. It will appear from the previous notices of this kind of hurtful influence, that they are more permanent and extensive than the miasmata, and may be considered as more diffusive and durable.—Perhaps the earth is frequently emitting from its bowels a silent vapour through water, the surface of the earth, and in time of frost, through various crannies and channels, and mixing with the common air. These may be, for the most part, harmless, unless when connected with the general pestilential diathesis.

The same observations may be applied to the other diseases, that extend very widely, especially in the winter season. The greatest sticklers for contagion can hardly presume to assign this as a cause; and as nature is generally uniform in cardinal principles, though greatly diversified in particulars, we are induced for the present, to believe that they have a conjunct cause, and that this must be a vapour or exhalation from the earth, suddenly emitted, perhaps in a very distant part.

The influenza seems not to be produced by cold, though it is easily excited by it; as it often appears in tropical countries; it also appears in this country in the midst of summer. A very remarkable instance of this happened in August, 1807, which invaded very suddenly the state of Vermont, although it seemed to progress moderately from south to north. It is generally the herald of other diseases, and denotes insalubrity in the atmosphere.

The air we breathe to-day may have been respired but a short time before by a *Hottentot* or a *Peruvian;* or might contain the poisonous vapour of Hecla or Vesu-

vius, wafted hither by the great currents that are known to traverse our atmosphere. But sources of contamination may be nearer home.

SECTION V.

Predisposition, or a greater liability to disease as an effect of remote influences.

The foregoing may be considered as remote causes; having an insensible effect upon the systems of men, whereby they are rendered liable to disease.

This state of the human body has been denominated a predisposition to disease; but we are not here to understand it as being actual disease; but only a susceptibility or aptitude to particular diseased action in the system, when thrown into any state of commotion by the exciting causes, which are very numerous.

It may be a very curious question to determine, what actual change takes place in the system, that should render it so liable to the attack of fever from slight causes, which would not be noticed at another time.

The very delicate functions of the human system, as connected with nervous irritability, are intricate and difficult to be understood; and more especially to be expressed, from the poverty of language. In these particulars, physiology acknowledges its ignorance.

From what we can discover, the remote causes exert their first influence on the numerous nervous expansions, distributed on the surface of the body; in the lungs; in the throat; in the alimentary canal; in fine, upon all the internal membranes, blood-vessels, and muscles.

The subtle aura, like the electric fluid, may be considered as pervading the whole system, and giving a new tone to the nervous energy. A peculiar morbid excitation, or vacillating tone, seems to be manifested by a greater liability in the system to be disturbed upon slight impulses. Abortions are frequent at such periods. Small scratches are liable to inflame; and chronic diseases are rendered more obstinate. Old sores grow worse, and old scars, and calluses of the bones, suffer slight pains. The healthy physiognomy and usual degree of strength in mankind in general is diminished; and it may be left to the *casuist* to determine, whether the different passions of mankind are not more readily excited ?*

The predisponent influences seem to have the effect of inducing less energy in the system, with a greater degree of susceptibility of action from slight impressions. Further, those organs of the body, in a healthy state, which perform what are called involuntary functions, such as the heart and arteries in particular, have a greater permanency of nervous energy imparted to them, than the organs of voluntary motion; such as the muscles of loco-motion, extremities, &c.

From hence all impressions of debility of the nervous system at large exhibit different effects in different parts of the body, according to the different degrees of permanent nervous energy, imparted to each particular

* The reader may, if he pleases, consider the circumstance of the internal feuds, and war of all christendom being at their zenith in 1811 and 1812, &c. Also the series of national turmoil since 1807.

function;—from which position, it is easy to apprehend, that those organs or parts of the body, possessing the least permanent nervous energy, suffer most from an abstraction. Take, for instance, the state of sleep, which is a state of temporary debility. The voluntary muscles become quiescent, whilst the motions of the heart and of the organs of respiration continue, with some diminution only in frequency. Less energy of action is discoverable on the surface of the body and extremities in sleep than in wakefulness, with the same covering and condition of personal atmosphere.

All the secretions in the remote capillaries, may be considered as less in the time of diminished energy of sleep, other things being equal; even perspiration not excepted.

The intricacy of the subject has induced this illustration, to give an example of the tendency of every diminution of the energy of the system, depending on a general operation, to have its greatest effect on parts least endowed with nervous energy. In the instance of syncope, energy first fails in the skin, the extremities, the voluntary muscles, then in the heart; but this last organ soon feels the renovating influence of nervous energy, and the equilibrium is restored.

There is no difficulty in conceiving, that powers gradually applied to the system, may induce a change in the tension and irritability of the muscular fibre, causing the state of health to vary a few degrees from the most perfect healthy standard, and yet not induce actual disease; and even to be unheeded by the subject. Instances

of this are very familiar in common life, from adventitious causes.

One circumstance further of some importance may be noted here, and numerous facts might be quoted to substantiate the position, that people in a state of despondency, of fear, of despair, of disappointment, or chagrin, are more liable to be attacked with epidemic fever, than they are in opposite circumstances. The passions of the mind variously affect the body; the depressing passions weaken the exercise of the functions, and invite disease.

It may be understood, that the general hurtful powers in the atmosphere affect all people within their influence; but not in the same degree. This is supposed to arise from the different constitutional liability or aptitude to impressions from external objects. This may be noticed in the mind as well as the body. Hence we find valetudinarians possessing oftentimes this irritability of fibre in the most exquisite degree, are the first affected in an epidemic season. This state of predisposition is manifested in epidemic seasons by vertigo, slight pains in the head, and nervous debility, in moveable habits.

A view of the acquired state of susceptibility may be understood by observing how readily tooth-ache, ear-ache, tic-douloureux, &c. may be excited by even the slightest impressions of cold, or other causes, where the predisposition is present; which at another time would not be noticed.

Hitherto the hurtful predisponent principle has been considered entire, and without any discrimination or notice of varieties. All that will be observed in this

place is, that it consists of many varieties; as is demonstrable from the effects produced. But to ascertain the specific condition of the hurtful principle, is above the present state of philosophy.

The influenza is marked by a local affection of the throat and lungs; the dysentery, by an impression somewhat similar, as appears by dissection, in the lower intestines;—the angina, or canker rash, affects principally the throat;—the yellow fever principally the biliary organs and stomach;—and the plague the inguinal and axillary glands.

From a knowledge of these facts, we are irresistably led to the conclusion, that there is a specific difference in the predisponent principle. And further, it appears true, almost to demonstration, that so far as we are acquainted with local causes, these serve to give the specific difference; and where we are not acquainted with them, as in influenza, epidemic pleurisy, &c. we may *presume* them to make the difference.

How far a real substance may be applied in these instances, is difficult to determine; but some impression seems to have been made upon particular organs in all these instances, more than upon other organs. We know that articles of the *Materia Medica* have a tendency to excite into action different organs in a different manner.

People may talk about sympathy from foreign objects; but this is difficult to be understood, otherwise than through the medium of the passions. A material rather seems necessary to have an effect, however attenuated it may be. The smell of a rose, which some-

times produces fainting, associates the idea of matter impinging the olfactory nerves.

A more satisfactory illustration seems to be given by these facts, that mercury placed upon the shelf of a fire-place, in an open vessel, will produce salivation in those, who occupy the room, after some weeks; also, that those, who are exposed to the vapour of lead, are liable after some time, to a particular kind of colic.

Many similar circumstances might be brought, but we must be cautious of analogical reasoning; it only serves to help the mind to comprehend difficult subjects. It is not very probable, that the predisponent influences are so permanent as in the instances of the *mercury* and *lead*;—indeed it is questionable whether *they* would, in these instances, produce disease without the aid of exciting causes. Perhaps the subject of specific impressions may hereafter be further noticed.

Let us now suppose a person enveloped in an atmosphere capable of changing the tone in a peculiar manner, and consequently the state of the system, from the usual standard of health, and approximating it to febrile action, and observe the necessary consequences. It does not appear to be a necessary consequence in this case, that the subject should certainly be affected with fever; and we actually find, that many pass through the most severe epidemic seasons without being affected.

It is not only probable, but certain, that much may be done to prevent the access of fever. On the other hand, the circumstances that impel the system to diseased action, are numerous; and this leads to a consideration of what may be called *exciting causes*.

SECTION VI.

Exciting Causes, &c.

Under this head may be noticed all those powers which casually affect the mind or body sufficiently to produce any kind of commotion in the actions of the system. Such causes, as, in a state of sound health, free from any predisposition, would be unheeded and harmless, in this peculiar vacillating and irritable state of the system, produce great oppression and disturbance.

It may not be necessary in this place to designate all the exciting causes. This might be attended with much difficulty and labour. Let the mind turn upon the varied scenes of life, and observe the different pursuits and unstable habits of mankind; the different changes in the atmosphere, as respects heat and cold, dryness and moisture, &c. the different passions of the mind, influencing the corporeal part; and we discover that these may be multiplied to a great extent.

Cold, or the abstraction of caloric, will be considered as the most frequently pernicious of the exciting causes. It is not the absolute degree of cold, that is to be dreaded, but the relative; and as it respects the suddenness of the transition. Winter and summer have but little effect in the production of epidemic fevers. Their particular character may be changed, but they spread at all seasons, especially in those attended with the most sudden vicissitudes. Thus the changes may be in the atmosphere; the temperature of the body being the

same; or it may be from the body's being heated, and returning to the ordinary state of air; and again, the body may be exposed to the usual temperature of the air, but under circumstances not well suited to resist the impression of cold, as happens in the state of sleep. A great proportion of the most violent cases of epidemic diseases, happens from attacks during the night.

In whatever manner cold is applied, it evidently operates by diminishing energy in the action of the system; and whatever stimulant effects may appear, ought to be referred to the collision in the system; and, in a particular manner, the action of the heart and arteries.

The natural vigour of the healthy system seems to be kept up, by a dispensation of animal caloric to all the remotest parts, through the medium of the circulation of the blood. It will only be necessary to observe, in this place, that it seems to be the property of cold to give permanency to the changes induced on the surface, in the capillary arteries, lymphatics, &c. through nervous stricture, or tonic spasm. This permanency of torpor in capillaries, perpetuates febrile commotion; and this circumstance renders it probable, that cold has a concurrent operation with all the other exciting causes.

If the circulation languishes, as in debility it must, the surface and capillaries are robbed of their natural share of stimulus. Admitting that nervous energy is previously diminished; it is manifest that the application of cold will still more increase the diminution. The effect is scantiness of blood, of caloric, &c. with paleness, shivering, &c. But of this more particularly hereafter.

Certain facts have been related by different writers, of people being suddenly affected with faintness, followed

by distress and fever, upon receiving offensive and oppressive scents, &c. at certain times. Such impressions have been considered the efficient and sole cause of the fever; and it is said, that it is contagious, and acts by a fermenting principle, &c. It may be replied to this;—that these impressions so offensive to the olfactory nerves, and through these and the lungs, communicating to the whole system, only show these deleterious effects in certain seasons, and under certain circumstances; to wit, when all the other elementary causes concur to produce sickness. The offensive impressions are very common in life, but it is only at such times as epidemic diseases are spreading, or beginning to spread from their real causes, that accidents of this kind happen. It will therefore be considered, that offensive impressions upon the olfactory nerves act as exciting causes by the commotion they produce in a highly predisposed subject. It is altogether immaterial in what manner the system is thrown from its pivot, or even balance of healthy action; whether by passions of the mind, by lesions of the body, or injuries through the medium of the senses. It is sufficient that commotion is induced, and the system thrown into inordinate action; and we see that this last continues, like the pain of a defective tooth, until the paroxysm is over, notwithstanding the exciting cause is passed by.

Fear, grief, anxiety, fatigue, watching, wounds, bruises, burns, surfeiting, famine, all passions in excess, intoxication, debauchery, &c. may all be placed amongst the most prominent of the exciting causes;—or those circumstances, that excite or disturb the regular functions of the system, and consequently induce febrile commotion.

That some of the forementioned exciting causes are necessary to the production of epidemic fever of all kinds, is rendered sufficiently probable from this circumstance, that the sick can most commonly refer to some time and place, when they were under the influence of them; and that their disease began directly, or in a very short time from such exposure. It may be noticed, that neither they, nor their friends, are always capable of discriminating so correctly; but this is no proof, that the causes have not had an impression, for a very little deviation in an exquisitely excitable state of the system, is sufficient to induce disease. Many receive this impression in the unguarded hour of sleep, who went to bed well. They awake in distress; or perhaps they will arise with but little indisposition; but a few hours will warn them of their danger.

Changes of weather happen oftener than people change their bed-clothes; hence it is common for writers to mention great numbers being taken with dysentery or some other epidemic, in one night, particularly after a shower; perhaps more than have been attacked for ten days before. Something like this we have witnessed in dysentery, and other habits of epidemic complaints; more particularly in influenza, and peripneumonia epidemica; these being diseases attended with local affection in such parts (throat and lungs) as cool air always finds access to. Beside this, as it respects influenza, this seems to be a disease giving a peculiar susceptibility to impressions from cold, and a desire to avoid it; hence it is so readily excited.

One circumstance further deserves to be mentioned as proof that exciting causes are of importance; more espe-

cially as the fact has generally been improperly explained; which is, that in time of plague, those that shut themselves up in their houses and do not go out, are not very apt to have the disease. The same has been observed of *nuns;* also the same of prisoners. The same has been said of *alms-houses, hospitals,* and indeed of *work-shops,* &c.

Facts of this kind have been noticed by American writers upon yellow fever, &c. The solution of all the difficulty seems to consist in this, that these characters, from their insulated situation, are not so much exposed to the exciting causes. In certain instances, however, they may not be so much exposed to the local causes.

Praphylactic Rules.

The praphylactic rules to be observed in all epidemics may be comprised in a few propositions.

I. The general predisponent cause cannot be avoided.

II. When the local cause is known, it ought to be removed. If this is impracticable, it should be avoided by removal out of the deleterious atmosphere, which is commonly but a few miles distant.

III. If this cannot be done, use diligence to obviate the effects of predisposition.

1st. The effects of predisposition may be rendered less dangerous by carefully noting the state of action in the system.

If any degree of pain or restlessness is discovered with quickness of pulse,

1st. Take blood.

2. Make use of saline laxatives.

3. Promote perspiration in the gentlest manner.

4. Use vegetable food and diluent drinks.

5. Avoid stimulants.

If the pulse is slow and vacillating,

1. Use small doses of carbonate of iron or Peruvian bark.

2. Use wine very moderately.

3. Gentle laxatives of cream of tartar and rhubarb.

4. Promote external warmth and perspiration.

5. Observe equanimity of mind; and,

6. In both instances keep the tone of the fibres as near the healthy standard as possible; observing, however, that the force of the heart and arteries be rather diminished, than increased above the natural standard.

IV. Avoid exciting causes.

1. A knowledge of the before mentioned exciting causes will be sufficient for avoiding them.

2. Use moderation in all things.

3. Be diligent to keep the body in an even temperature, moderately warm.

CHAPTER IV.

CONCERNING FEVER IN GENERAL.

SECTION I.

Definition of Fever.

THE symptoms of fever are all equivocal. Whatever definition of fever may be made, its character must, at present, be considered as ambiguous. It is from an assemblage of circumstances attending the particular state of violence or rapidity of diseased action in the system, that forces upon the mind a discrimination between those diseases that are more quick, and those that are more slow, in their operation, and consequently in their termination.

Those states of disease, attended with most violent action, have been called *acute;* those attended with more slow and torpid action, with long continuance, have been called *chronic.* The acute diseases have not been well defined; some are only of seven days' continuance, perhaps; whilst others are of as many weeks, or even more. Indeed, our views are extended, when we consider, that certain diseased states of the system destroy life in four hours; such as plague, yellow fever, spotted fever, &c. and others, under bad management, have the same effect after an hundred and twenty days, as typhus fever, &c.

The symptoms in general are very similar in the acute and chronic states of disease; making allowance for the different force of morbid impressions, which may be called the causes of disease, and the different irritabilities of the subjects, and some other circumstances of a personal nature.

It is observable, that both these divisions of disease are generally attended with local affections. They are attended with more or less commotion in the pulse; with more or less cold shivering; with some increase of heat; with the interruption and disorder of several functions.*

From this view of the subject, we are led to observe a very strong analogy between fevers, and the more protracted diseases, called chronic; and the difference, which we discover in the more violent, or more mild concourse of symptoms, may all be apprehended; partly from the particular condition of the subject, and partly from the degree of violence in the nocent cause. Take, for example, pneumonia and pulmonary consumption. In the former, the attack is rapid, and the disease quickly destructive, from, perhaps, a connected disordered action of a great portion of the system; and which is concentrated in the lungs, producing a violent concourse of symptoms. In the case of pulmonary consumption, we discover the same concourse of symptoms, only more mild; yet equally fatal if not obviated. Both cases are attended with cold chills, heat, pain, cough, expectoration, ulceration, emaciation, &c. In the latter case, the causes are not so hurtful, or make less change in the functions of the system, and of course, the responding action of the system is more mild and protracted.

* Cullen.

Cases of hydrocephalus have terminated fatally, in 48 hours; in other instances, three years have hardly been sufficient to free the wretched sufferer from his cruel disease.

Rheumatism, and many other affections, might be adduced to show, that the symptoms are very similar in the acute and chronic state of disease; and that the difference consists altogether in the degree of violence offered, and the responding action of the system.

In acute disease, the danger is most prominent, and most to be dreaded from a general operation in the system, destroying life, perhaps, before any essential organ is spoiled. In chronic diseases, the greatest danger is apprehended from the spoiling of some essential organ; and the effect of this is more to be dreaded, than the violence of general diseased action.

From these considerations, it appears very difficult to give a definition of fever, otherwise than as *an assemblage of symptoms and circumstances denoting a more violent state of action, and a more suddenly fatal tendency, than those which attend chronic diseases.*

SECTION II.

*Phenomena of Fever, in connection with its proximate cause.**

Our review of the phenomena of epidemic fevers, in common, may be short. They will be considered, as connected with the proximate cause, so far as that may be understood. The causes predisponent and exciting,

* By proximate cause may be understood the first preternatural change made in the system by hurtful impressions.

mentioned in the last chapter, having been applied, the first symptoms are a sense of weariness, lassitude, faintness, and desire for rest and sleep; which all denote a torpor, or want of nervous energy in the system. The muscles of voluntary motion are deficient in power. The heart at this moment beats more feebly and more slowly. These circumstances warrant the opinion, that the first change in the system is a weaker action of all its parts, through defect of nervous energy. If the previous state of predisposition had shown signs of excitement, yet, upon the application of exciting causes, a degree of torpor is induced in all the functions of the system. The application of cold, under certain circumstances, as in Chap. III. Sect. 6, may be supposed the most pernicious of the exciting causes; indeed, it evidently appears, that this concurring with the previous state of predisposition and collateral exciting causes, gives a degree of permanency of torpor in the capillaries, difficult to be overcome. It is supposed to have some similarity of operation in the lymphatics and capillary arteries, that tonic spasm has in the muscles.*

* Torpor added to increased susceptibility, is often attended with fixed spasm. A person slightly indisposed is liable to have cramp in the leg upon moving it into a cold place in the bed. Cold induces the torpor, and, in moveable states of the system, spasm follows; the function being impaired, may be said to be in a state of debility. With respect to capillary vessels, it may be suggested, that after spasm is removed, an inability and imperviousness sometimes remains; this again may be called debility or torpor. Fevers often commencing with convulsions of the whole muscular system, and ending in tetatnus, corroborate these positions. *See Chap. V. Sect. 2.*

Let us suppose, for the present, that torpor continues to increase, which is actually, sometimes, the fact, in those diseases that have been called malignant, such as plague, spotted fever, &c. and which terminate in a few hours in death. The consequence is, that there will be an uncommon paleness in the countenance, coldness in the extremities and on the surface of the body, perceptible to a by-stander, but not felt by the patient himself; a shrivelling in the veins under the skin, and the blood in them, giving the appearance of a darker hue through the skin, rendered more transparent by a receding of blood from the smaller capillary vessels. Sometimes a stagnation of blood in capillary vessels of the skin, gives a dark sublived appearance. The blood suffers a change of colour, from the want of a due degree of oxygenation, on account of the torpor of circulation in the veins, and impaired function of the lungs. Blood is drawn with difficulty, at this time, and can seldom be made to run a stream, but trickles down the arm of a darkened colour.

At the same time, there is much distress and anxiety in the precordia from a collection of blood, in the great vessels, more than the enfeebled heart can circulate. Synchronous with these phenomena will be a stupor or imbecility of intellect, from an accumulation of blood in the larger vessels in the unyielding bony case of the head; operating by compressing the brain, and increasing the danger by still more weakening nervous energy, which needs to be distributed to the remote fibres and vessels. The distress increases in every internal part, but is not distinctly realized by the semi-apoplectic pa-

tient; it is, however, often manifested by irregular groans and broken sighs; also by hasty and abrupt expressions, together with unmeaning and deviating motions.

Very early in this stage of things, the heart attempts to exercise its pre-eminence over the organs of voluntary motion, and over the subordinate series of inferior vessels, by efforts to relieve itself from its massy load. The first efforts are irregular; the stimulus to exertion is great; not having capacity to propel its usual quantity at a pulsation, it quickens its pace to make up the deficiency. All is ineffectual. The balance of strength is against it, in consequence of the derangement in the exercise of the functions of the capillary system. Comato-delirium, with aberrations of mind, and much solicitude, are often present, from irritation in the encephalon. The heart palpitates with much vehemence;—140 or 170 pulsations may be distinguished in a minute; and after that, a more tremulous motion. The pulsations shortly cease at the wrist; coldness increases on the surface and extremities, with convulsive puking; the eyes become suffused with trickling tears, and lose their brilliancy; a slight sub-lived shade beneath the cuticle; respiration is short and hurried, interrupted by sighs and groans; the heart, although possessing the most permanent vigour of any organ in the body, has to resign its umpire; it ceases from the exercise of its office, and with it, respiration, which is now only a gasping; and our patient, with a flaccid countenance, is folded in the calm repose of death!*

* This is what every practitioner must witness, who is conversant with the more violent kinds of epidemic diseases. The

Reverting back to our order of proceeding, it will appear, that a torpor in the action of the system, is induced, attended with stricture of the surface, and weakness in the voluntary muscles; paleness of countenance; receding of blood into the larger internal vessels, with coldness, not perceptible to the patient in the last recited instance; but the most common effect is, that the heart and arteries, do propel the blood into the finest blood-vessels in the muscles and on the skin, with a flush in the countenance, restoring animal warmth to the impoverished surface, and thereby giving the sensation of heat and cold, commonly called cold chills. These vary in degree in different cases. They are favourable, as they denote the external vessels permeable in part, and that the torpor may be overcome by the exercise of the heart and arteries, and that the system may be saved from the danger of destruction.

The co-operation of hurtful powers, which excite disease, may be said to have a temporary debilitating effect on the system. It is an invariable law of the animal economy, when any power is applied, producing a temporary debility or depression in the living irritable fibre, that energy or action rises above the natural standard, as soon as it is relieved from the debilitating impres-

picture is intended in more general terms to apply to the more suddenly fatal cases of spotted fever, but it is believed, will apply to all the more alarming epidemics. All this scene is acted, sometimes in the short space of two hours; often in four, twelve, or twenty-four hours. It is common in the country, where we have to ride a few miles only, to find our patient dead before our arrival; and perhaps another taken sick.

sions. This responding action constitutes fever or pyrexia. If the depressing powers are great and sudden, life may be extinguished without this responding action, or only in a small degree. If they are more slight, and the system has opportunity, and not incumbered with too great impediments, responding action is often strong and permanent, producing what may be called morbid excitement, or fever. The degree of morbid excitement is varied by numerous adventitious and personal circumstances.

One common effect is, that the blood accumulates in too great quantity in some organ essential to life. Pain follows, often excruciating. The pressure of blood induces a stretching of vessels; their irritable coats act with their own elasticity in large vessels, and with muscularity in small ones; and often in a spasmodic manner. The circulation is pressed on one side, and hindered on the other; inflammation ensues. The serous vessels, distributed on the surfaces of blood-vessels of more capacity, and the serous vessels of the surfaces of organs, in membranes, &c. become injected with red blood; constituting the *error loci* of some writers. This is of much importance in pathology; it takes place oftentimes, and perhaps constantly in one place or another, in all fevers, in some part or other of the internal membranes. Its presence is oftentimes distinguishable by pain, and some degree of heat and soreness.

If the primary cause of fever is overcome by the natural operation of the system, or by the help of art, this wandering blood quits its unwelcome abode, by a retrogade motion; if, however, the imperviousness or

stricture, continues, these vessels retain their pressure or congestion with membranous inflammation; and this, in its turn, serves to keep up an irritation in the whole system, and protract fever.

This phenomenon is witnessed in a multiplicity of dissections. In the membranes of the brain, it produces pain, delirium, or coma; and perhaps serous effusions into the ventricles, constituting hydrocephalus. On the surface of the lungs and pleura, it produces pain, effusion of serum in the cavities, which may be absorbed again, and produce adhesion;—in the bronchial vessels, it affords the fine blood, by a bursting of the thin coats, which is raised with the sputa;—in the stomach, it produces more pain, from the delicacy of nervous irritability, with puking and a sensation of heat and inflammation; and, sometimes, affording a small portion of blood to the other materials, secreted from the internal coat, gives the colour of black vomit; in the membranes of the nose, the vessels may rupture and produce epistaxis; in the colon and rectum, the terminations of small vessels rupture, producing the bloody mixture in dysentery; in the case of typhus fever, the accumulation of blood is great in the mesenteric vessels, and their intestinal terminations may be ruptured at innumerable points, producing a flow of blood, which terrifies the patient and physician, when it is only the kind hand of nature to do what the physician should have done, days or weeks before, with his lancet. Sometimes on the surfaces of the internal membranes, as also on the skin, this peculiar membranous affection has a sort of stellated appearance, giving the different varieties of petechiæ. Dissections

exhibit this stellated appearance on the internal membranes of the colon and rectum in dysentery; and on the surface of the lungs, pericardium, diaphragm, &c. in spotted fever; as also on the external and internal coats of the stomach. Finally, if the general state of disease is not ameliorated, but continues, this superficial inflammation in certain places internally, is wont to communicate to adjacent membranes, and to subjacent vessels, until a considerable extent is converted into a hard, firm, red substance, with a deposition of coagulable lymph in the interstices of fibres. The function of the part is impaired or destroyed, and inflammation, more strictly phlegmonic ensues, with all it consequences. Or, by an effusion of coagulable lymph or other fluids on the surfaces of membranes in different cavities, produces many phenomena in different organs, as the effect of diseased action; as in croup and pneumonia.

This pressure or congestion in the lungs, on account of their yielding texture, produces a constipation in the vessels, of disoxygenated blood, which sometimes proves suddenly fatal.

SECTION III.

Affections of the sympathetic nerves.

From what was suggested in Chapter III. Section 5, it will appear agreeable to the laws of physiology, that the involuntary organs, called also by some, assimilating organs, by receiving the nervous influence through the agency of ganglions in the sympathetic nerves, have a more permanent influence on the organs to which they are

distributed, than over other organs, which are supplied immediately from the encephalon. Hence it is that we discover great weakness in the external muscles of locomotion, whilst the heart continues to act with much vigour. Whilst fever continues, it is to be expected, that the stricture on the surface, and internal inflammation, are not yet removed, even though there may be much heat present; and the heart and arteries will act, with more or less vehemence, until the stricture on the surface, and internal affection, are removed, and the capillaries become permeable;—or until, it has exhausted itself of all its energy, by repeated and fruitless efforts, and falls into a state of eternal rest, after weeks of toil and labour; similar to the instance before mentioned of a few hours.

Were it not for this established order of things, there would be no conservative principle in the animal economy. Hurtful impressions on the muscular fibre of the surface, would be equally felt in the more vital parts, and man would be the prey of many vicissitudes which he now passes by, with seeming indifference.

Upon this law of the animal economy, may be explained a great proportion of the symptoms of fever. The heart is the last organ, that, ostensibly, ceases to act. This will continue in some conditions, when all the other functions are quiescent; and if resuscitation takes place, this is the *primum mobile*. I have witnessed myself a few instances, where the pulse beat at the wrist, from one to two minutes, in people dying with spotted fever, after every other sign of life was absent, and have been assured of the same thing by others.

It is believed, that this takes place in vigorous habits, and where stimulants have been used, and after the ener-

gy of the system has emerged, in some degree, from its first state of depression; but where the fatal event takes place in this last mentioned condition, the pulsation *at the wrist* often fails for some time before the heart ceases to beat.

On account of the intimate union and intertexture of the numerous branches of the great sympathetic nerves so liberally bestowed upon the organs in the abdomen, in the thorax, and partially in the throat, we gain an understanding of many phenomena in fevers which otherwise are unintelligible. When one organ is more particularly injured, the others suffer more or less, by a kind of simultaneous action or sympathy.

An injury done these nerves, as they are distributed in the viscera of cavities, whether by wound or inflammation, produces vomiting, and the heart is forced into a violent action, being connected with the great family of the sympathetic nerves. Disease produced by some injury done to organs supplied by these nerves, is of a peculiar nature. Extreme distress attends them, unless coma is present, from congestion in the head; the pulse is quick, hard, small, and oppressed; a falling of the countenance with cold sweats, &c. at the close. Inflammation, falling upon these organs, runs through all its stages much more rapidly, and with much more danger to life, than inflammation in the membranes and muscles in other parts of the body. The same set of mortal symptoms, or indirect debility, for example, which takes place in fatal cases of rheumatic fever, at the end of three weeks, takes place in the iliac passion, at the end of three days. The same may be said of the gout, when attacking these viscera, instead of the extremities.

Now as it is provable beyond controversy, by dissections, that, in certain epidemic fevers, some of these organs are manifestly injured more than others; so we find a particular set of symptoms attending each epidemic; and, at the same time, we find many symptoms in common to them all.

SECTION IV.

Localities of disease.

It may be observed in this place, agreeably to what was suggested in Chapter III. Sect. 5, that there is a difference in the predisponent principle, whereby some one part of the body is rendered more liable to vascular and membranous inflammation than others; constituting the diversity of symptoms in different epidemics. An idea of this membranous affection may be gained by inspecting the adnata of the eye in a state of inflammation; it, however, is not always so conspicuous. From the best evidence we have, it will be suggested, that a peculiarity in the local causes of disease, gives the different varieties. In the *yellow fever*, the locality of disease is principally situated in the region of the liver and stomach; hence from a particular affection of the branches of the vena porta, the disease is attended with bilious appearances. The bile is not the cause of the disease, but only an effect of perverted organic action.

In *spotted fever*, it is very difficult to fix on any one particular organ, as its place of constant habitation. As the eruption upon the surface is sometimes universal; so the affection of all the internal membranes, is sometimes

discoverable. It might be called the *mocking* fever; as it assumes the mask of most others occasionally. It most commonly fixes on the anterior and inferior membranes within the cranium; it sometimes resides principally in the stomach and contiguous parts; sometimes in the heart, lungs, &c.

In *angina scarlatina*, or *epidemica*, the locality is very constantly in the throat; but the membranes on the surface of the body, and also the membranes of the trachea, participate, and more particularly those within the head.

In *pneumonia epidemica*, the locality is generally confined to some or all the membranes of the viscera of the thorax.

In *dysentery*, the locality is almost altogether confined to the internal membrane of the rectum and colon.

In *typhus mitior*, the hurtful agents are feeble and slow;—the local impression appears to be divided between the membranes in the head and abdomen.

In *intermitting fever*, the liver, stomach, and spleen, are more apt to suffer than any other internal viscera.

In *influenza*, the locality is very generally in the trachea and internal membrane of the lungs.

In *puerperal fever*, prevailing epidemically, the locality is confined to the uterus and viscera of the hypogastric region.

Notwithstanding, the foregoing phenomena usually appear, as they are described, and these localities afford their discriminating characters, yet it is frequently the fact, that other organs suffer immeasurably in the conflict of disease by contiguity, or by similarity of membranous continuance, or by nervous association;—for

example, the yellow fever, though principally in the stomach, is attended with much affection of the liver, and also of the head.

SECTION V.

Varied diseased action.

HITHERTO the before mentioned epidemic diseases have been considered, as prevailing altogether in a solitary manner; indeed, it is usual for some one to have the pre-eminence; but it is also frequent for two or more of them to prevail at the same time. By this may be understood, that the epidemic causes, by meeting with personal peculiarity, may affect different organs, and have different symptoms; and consequently have different names attached to them; also the diseases are supposed to be of very different diatheses, when it is only another variety of the same disease.

It is common to see dysentery, and those fevers called bilious, prevailing at the same time; or it may be such, as are denominated typhus, &c. It is very frequently the fact, that when common fevers prevail of any kind, many will have the disease, which is called colic, or what many suppose to be colic, although the intestines are pervious.

It is common for pleurisy, phrenitis, croup, typhus, and even mania, to prevail at the same time. Numerous remarks of a similar nature might be added of diseases prevailing at one and the same time, of supposed different diatheses, when in fact, it is nothing more than this, that the disease falls with greater force on some *other* organ than usual.

These facts are of infinite importance to the practitioner, and might be so to the nosologist. They teach the former that all epidemic diseases are of one family, and nearly allied to each other; and that the principal difference consists in a difference of certain symptoms, which entirely depend upon the locality of the disease; and however necessary it may be to bestow particular attention upon these, in certain varieties, yet the general state of diseased action is very similar, and to be relieved by the same general remedies.

The nosologist may reflect on the danger of substituting names for essences; and the folly of establishing fixed characters to the mutability of diseased action, not comporting with the physiognomy of the case at the bed-side of the patient.

SECTION VI.

Depraved action of the stomach, liver, and kidneys.

Various other appearances are noticed to take place, and in different degrees, as a consequence of deranged actions in the system in the attack of fever; many of which may be apprehended from the repercussion of humours from the surface to the internal viscera, which have become impatient of stimuli and distension from predisponent influences. *See Chap.* III. *Sect.* 5.

The stomach essentially suffers not from bile, or viscid sordes, as is sometimes imagined, for these are the after consequences, but from the same vascular action and nervous sympathy, from which the other viscera suffer. Vomiting sometimes suddenly appears, and this denotes

the same kind of organic action that we discover in the kidneys, which is attended with a flow of urine; and when the same action falls with most force on the intestines, diarrhœa or dysentery may be the effect.

The first impression on the stomach is denoted by a sense of faintness, then sickness, then vomiting. All these effects are suddenly produced. The other viscera, perhaps, oftentimes feel the morbid impression, as soon as the stomach; but this, from greater sensibility, first manifests its convulsive throes to our perception, by a discharge of its contents. This effort is also often attended with salutary consequences; for the action of vomiting helps diffuse the circulation from the centre to the circumference, which is answering the natural indication of cure. By this effort the torpor, or tonic stricture, is sometimes overcome, and the circulation established in the lymphatics of the skin and subjacent parts, especially if the operation is in circumstances favourable to sweating. But the patient is not often so fortunate as this. The vomiting may continue without this beneficial effect; and its repetition becomes a source of irritation to the coats of this viscus, attended with membranous inflammation.

After the vomiting has been continued only a few repetitions, the bile finds its way into the stomach through the common passage, and is thrown up with the other secretions. It is expected now to be secerned in greater quantity from the same general cause that induces a more violent action in the other viscera. Superficial observers in all ages have agreed to accuse this innocent straggler, as being the author of all the mischief. The

mineral and vegetable kingdoms have been rifled of their most powerful engines to assail it; and the conflict has often terminated in the loss of the patient, before the extermination of his supposed enemy. The bile also pursues its natural course down the duodenum, if not reverted with excessive vomitings, and lodges more or less in the intestines; accumulating here and mixing with heterogeneous matter of the intestines, assumes a darkened colour, and needs oftentimes suitable cathartics to dislodge it. If calomel is used for this purpose, the discharge will be more darkened.*

* To prevent being misunderstood, it may be necessary to observe, that it will not be denied, but that the bile may offend in quantity and quality in certain instances. It manifestly does in certain states of fever of some continuance, when the circulation has been pressed into the mesenteric vessels and into the vena porta, which suffers from the circumstance of a torpor, passing a second circulation, without the vigorous impulse of the heart and arteries. The vena porta may receive more blood, and have internal congestion at such times, and possessing properties more appropriate for the formation of bile, and perhaps of a more irritating kind. For the purpose of dislodging this, gentle vomits may occasionally be interposed; and not only for evacuating the secreted bile, but also for the purpose of exciting a motion in the hepatic system of vessels. For the same purpose cathartics may occasionally be employed. There is a wide difference in having it in view to fulfil the above indications, and having it in view to unload the stomach, duodenum, liver, and gall bladder of bile, and considering this as the cause of disease. If truly it were the cause of disease, it should be evacuated, and then the disease may be supposed to cease, as might be expected from any other offending matter; but this is not the fact.

It is further probable, that in certain places and seasons the predisponent causes may have a peculiar effect upon the hepa-

The kidneys suffer in the conflict of febrile commotion. The repercussion of humours from the surface to the internal parts, throws an undue quantity of blood into these viscera; but in the beginning febrile action is not so vehement as to suppress the renal secretion. This is analogous to the skin, which will admit of sweating more freely on the first day of fever, than after much heat has arisen. Therefore, there is often a flow of limpid urine in the beginning of fever. After febrile heat has arisen, there is a scantiness of urine, and often attended with signs of strangury from much tenderness in the delicate membrane of the urethra. After an uncertain continuance of fever, if it terminates favourably, along with the relaxation and permeability of all the finer order of vessels, the venal glands prove their deliverance by a discharge of gross fluids from the constipated vessels, and decomposed humours.

SECTION VII.

Depraved action of the Skin.

The skin exercises an important office in health and disease. In fever its function is depraved. The natural function must be restored before the health is established. In the attack of fever, perspiration is sus-

tic system, inducing peculiar biliary symptoms, as takes place in yellow fever, &c. Let all this be conceded; yet a wide difference arises in the mind and follows in the practice, upon considering that the vice is in the organ, and not in the contents of the organ; and that our object should be to modify and regulate the former, and evacuate the latter, so far as may be conducive to that end.

pended, with dryness and corrugation. This may be restored in the beginning by external warmth and moisture, and mild stimulants internally. The case now partakes of the nature of direct debility. If the perspiration is not restored in the beginning, which is very necessary, for the purpose of conducting heat from the body, the heat accumulates in the centre, and is increased afterwards on the surface; and when in this condition, perspiration and sweat cannot be induced until there is a subduction of excitement by blood-letting and other anti-spasmodic means, with external warmth, &c.

SECTION VIII.

Thirst.

Along with the torpor, or inert action, or depraved action, in other parts of the lymphatic system, we discover a drought or want of moisture in the exhalents of the mouth, fauces, œsophagus, and stomach, denominated thirst. Excite the capillary system into action, which is known to take place by the flowing of sweat, and thirst ceases.

SECTION IX.

Heat.

Upon the access of fever, coldness, in a greater or less degree, is present. After an uncertain interval, if the subject is so fortunate as to survive the first impression, which is generally the case, much heat is experienced in the system. This is different in different

subjects, and indeed in different habits of febrile disease. In some of the most alarming states of fever, the external heat is not very great, and perhaps the internal is not so abundant, as in some other states. In other cases the heat is very great.

The heat seems to be conveyed by arterial circulation. The oxygenation of the blood, through the instrumentality of the lungs, is the general received opinion; but where the lungs may be supposed in an impaired condition, as actually takes place in pneumonia, doubts have arisen whether the oxygen is received in due quantity to produce the abundant heat. It is probable, that part of the heat may be produced by decomposition going on in the blood, and part from the agitation and collision of the vessels upon their contained fluids, acting by a kind of constrictive nervous energy; or does this last excite the electrical principle?

SECTION X.

Spasms, convulsions, delirium, coma.

The nervous system is materially connected, and intimately concerned in the phenomena of fevers; as indicated from this circumstance, that it is a pretty frequent occurrence, that spasmodic jerks of the muscles are discovered in various parts of the body, on the first attack of fever;—and further also, that from the distress of new and unpleasant sensations, convulsions often appear over the whole system. These are sometimes repeated; but most commonly one fit only is experienced; and this may be one of the first symptoms of the attack. This

symptom may be considered propitious, as it denotes a capability in the system to emerge from the first state of depression. In the after stages of fever, tetanus sometimes appears;* it is unpropitious, but not a fatal symptom.

Delirium is two fold, attended with sleepiness, or attended with watchfulness. The first seems to be connected with congestion in the blood vessels of the brain with torpor;—the last, with congestion, and vascular excitement. They both demand serious attention.

Another variety may be noticed, being a volatile delirium, attended with pleasantry, which seems to arise from a moderate excitement, without congestion; or after congestion may have been removed by proper remedies. This is generally allayed by applying cold substances to the head.

Congestion in the head without inflammation in that organ, is attended with coma, and weakness in the voluntary muscles. Congestion with inflammation is often attended with delirium, and much strength in the voluntary muscles. This seems to denote a forced condition in the animal functions, and cannot be sustained beyond a certain degree, for any considerable length of time, like the action of the heart and other functions, which all depend on nervous influence for their ability of acting.

* In certain states of predisposition in warm climates, tetanus is one of the first symptoms of fever. It is such a manifest and alarming symptom, that it has assumed the predominant character of the disease, and has been frequently considered the principal disease, when it should be considered only a symptom of the primary affection.

After inflammation with delirium, has supervened upon congestion with coma; this last may again appear in consequence of a secretion of pus, or lymph, from the membranes of the brain, operating by compression.

It may be hinted in this place, that the suggestions of Professor Rush, are well founded, in considering the action of the sanguiferous system in fever as of a convulsive kind.

SECTION XI.

Solids and fluids.

WHETHER epidemic diseases act primarily upon the solids or fluids, has excited much speculation. It will be perceived, that no notice of their action upon the fluids has hitherto been taken, nor now only to put the question aside;—yet it is manifest, that great changes do take place in the fluids as a consequence of diseased action.

The fluids are entirely quiescent, and act only as they are acted upon. A mild and salutary action is necessary to their integration; but to apply remedies to the fluids, with a view to restore their perfection, is like striking at the effect to remove the cause.

Diluents and matters of suitable appetency, are necessary to the supply of proper nutriment;—and again, abstraction of blood and other fluids is, oftentimes, absolutely necessary to alter the tone of the vessels.

The passions of the mind have sometimes induced fever; and again, fear and terror have sometimes removed it. This proves the proximate cause of fever to to exist in the solids.

As soon as heat is generated, or becomes accumulated in the system upon the attack of fever, the blood appears to acquire a sort of expansive or rarefied state, actually occupying a larger space. The effects of this may be readily apprehended; and in those states of fever connected with a very unequal distribution of blood, and in those states connected with internal inflammation, demand an early and adequate abstraction of blood.

SECTION XII.

Oppressed action.

A VERY common and one of the most alarming phenomena, attendant upon the attack of fever, and even for some days after, is a state of universal depression, or oppression, or "suffocated excitement."

The system universally partakes of the same torpor, that is most manifest upon the surface. The heart is unable to respond to the pressure of the column of blood, sufficient to restore the customary circulation; and yet the pressure is not so great as to destroy life suddenly. Sensibility and irritability are diminished in the internal organs, which require large doses of customary medicaments to produce any desired effect. Congestions form in the numerous capillaries, and the blood is deficient of oxygenation. It is in this state of disease, that the pulsations at the wrist are often wanting in spotted fever, yellow fever, &c. In other habits of fever, and in those last mentioned, when not so violent, the same torpor is manifested in the kidneys by scantiness of urine, and in the bowels by constipation.

SECTION XIII.

Unequal action.

The foregoing observations may serve to give some idea, with respect to the inequality of excitement or action between the surface of the body and internal parts; but there is still manifest, in almost every fever, an unequal action with respect to particular organs. One organ or part of the body may be in a hot and throbbing state, whilst another is more cold and torpid. This state is often discovered in the head and feet. The internal viscera often partake of these different states of action.

A great desideratum in the practice, is to restore equality of excitement.

SECTION XIV.

Remissions, paroxysms, periods of fever.

Fevers are known to remit, and they have been distinguished by different names according to the periods of accession, in some instances. They have had various periods assigned them for their crises or solutions, &c. Now it appears manifest, that different subjects have different degrees of susceptibility, and different degrees of irritability, and responding actions. It also seems demonstrable, that the force of morbid impression in different diseases, is very different. Where the morbid impression is violent, the corresponding action may be supposed to be violent. This furthermore will be ac-

ceded to, that the system cannot sustain a violent action, so long as it will a gentle diseased action; for this reason, it must terminate in health or death sooner, and the more gentle may be sustained longer.

The preternatural action of the sanguiferous system cannot be sustained beyond a certain degree, suited to its energy, without falling back to a state of quiescence more or less complete;—when complete, it is the state of death;—when partial, it is a state of remission, or a pyrexy; and this takes place, when the proximate cause of disease is partially overcome. It being therefore only partially overcome, again accumulates from a concurrence of various causes, and the paroxysm is renewed, and acted over again; but with different degrees of force, according as the action of the system has been regulated by the applications; so that these may be rendered longer and more mild, or shorter and more violent. Hence it is that pure intermittents may be suppressed in their paroxysm, or may be converted, by bad management, into continued fevers. The like analogy will hold good in all fevers, although the remissions cannot always be so distinctly observed.

Hence also we discover much irregularity in the access of paroxysms in intermittents, and also much irregularity in the exacerbations of continued fevers of the epidemic kind. Some of the most violent of these last, terminate in health in two or three days; and again some of the milder species continue for weeks. In the former case, the proximate cause may be supposed to be effectually removed; whilst in the latter case, it remains unmoved; and also other changes take place in the sys-

tem, which, along with the influence of habit, serve to perpetuate the disease.

As observed before, the sanguiferous system inclines to a state of repose from violent action, like the muscles of loco-motion; and also like the muscles of respiration. Hence in much exercise, the muscles tremble, and seek repose as in the remissions of convulsions. In difficult respiration, remissions are sought for, and often enjoyed. The same analogy is discoverable more or less in the heart and arteries. A sort of vacillatory remission happens when the cause is not removed, attended sometimes with what some call a sinking faintness; in these states of the system, the pulse varies in frequency and force. A miniature of the greater remissions may often be discovered in the pulse of patients in spotted fever, particularly in the fore part of the fever. The pulse varies oftener, sometimes, than every half minute. It has been my practice, occasionally, to take a little blood at this time; and whilst the blood is running from a vein in the arm, it will often jet with some force, and perhaps in twenty seconds, fall back so as to trickle down the arm; and again, in about the same time, flow in a considerable stream. These jets and remissions may be alternated several times, while the blood is flowing.

The irregularity of paroxysms in all fevers, raises a doubt in the mind whether they depend very much on external circumstances. It is possible they may be varied by these. The most striking instance is, that fevers are observed to be less vehement in the latter part of the night. It is probable, that the former habitual state of

quiescence may have a share in this; perhaps also the absence of the stimulus of light, heat, exercise, and noise; or diurnal influence may have a share in this business.

There seems to be no assignable period for the termination of epidemic fevers; although they may generally terminate within one or two weeks; yet they may terminate in a few hours; or be protracted, under other circumstances, for months, or even years. Writers on the plague mention it as continuing in the form of slow fever for thirty or forty days, in some cases.

This is common in this country in dysentery, angina, spotted fever, &c. Indeed it may be asserted, that the host of chronic complaints, that follow febrile diseases, are nothing more or less than the fever imperfectly or partially cured!

Having passed, in a short review, the principal phenomena of fevers, as they appear separately and in concert at their commencement, it may here be observed, that many and various symptoms arise in the after progress of the disease, depending so much on adventitious circumstances, that it is thought proper to pass them in silence.

An attempt will now be made to propose a method of cure, as far as it can be considered in common, and on general principles. Brevity will be observed; and particular illustrations reserved to be considered in the treatment of the different habitudes of fever.

CHAPTER V.

ON THE TREATMENT OF FEVER, OR FEBRILE ACTION IN GENERAL.

"· · · · · Thou Good Supreme;
"O teach me what is good."

SECTION I.

On the first or depressed stage of Fever.

From all the previous considerations brought into review, it manifestly appears, that the *ledantia*, or hurtful principles, whatever they may be, have a tendency to impair, or injure the regular healthy action of the living system. In consequence of this derangement from impressions in the susceptible fibres, and irritable organs of the body, various, deficient, excessive, and convulsive actions arise in the system; all having a tendency, when extreme, to impair, to deprave, and to destroy the economy of the living system; but when moderate and well regulated, tend to restore the dissevered action, and perpetuate health.

In a perspective review of the *juvantia*, or things useful to the restoration of healthy action, in the tumultuous state of febrile commotion, *three cardinal objects* are presented for primary consideration.

The first is, to consider whether the first impressions upon the system, which have a debilitating effect, are in

danger of abstracting the vital principle, and inducing sudden death.

The second is, to consider, whether the vehemence of febrile commotion is in danger of immediately exhausting excitability generally, or of destroying the function or structure of any particular organ essential to life.

The third is, to consider, if the preceding states have passed by, whether the continuance of febrile excitement is in danger of depraving the integral state of the solids and fluids, rendering them unfit for the restoration of healthy action; which event must immediately or ultimately terminate in death.

If such tendency is discoverable in either of these three grades of disease to any considerable extent, the consequences ought to be apprehended as of serious import, and remedies should be applied to obviate the fatal effects. A consideration of these circumstances will comprise the whole of the method of cure in fevers.

It may here be observed, that the different kinds of treatment may not be so greatly diversified, as the several grades might seem to imply; but rather having respect to the degree of diseased action, the force of remedies need be adapted to suit the particular state of morbid excitement; the general curative indication remaining very nearly the same. It was, therefore, thought necessary to make the foregoing divisions more for the purpose of discovering the most obvious danger, and pointing out the varied applications, rather than for the purpose of introducing a new catalogue of remedies; for as diseases vary more in degree than in kinds, so the application of remedies should engage our attention more

in quantities than varieties. The business of the physician is to attend more to the regulating of the action of the system by known remedies, than searching after new ones by unwarrantable and precarious experiment.

In every attack of fever, there is experienced more or less depression; but it is only in the more violent attacks of pestilential diseases, that serious consequences are to be apprehended in the first grade of the disease. In the more mild attacks, the energy of the system is raised spontaneously as an invariable consequence of all impressions, proving stimulant, if limited to a degree of mediocrity. But if the impressive power is very great, and the energy of the system retires before it, vitality may suddenly be extinguished. Numerous instances of this are recorded in the plague; many also in this country in the yellow fever; and many also in this state in the spotted fever, dysentery, angina, and others. A short account is given in Chap. IV. Sect. 2, as relating to this state of disease, which may be adverted to.*

We have perhaps arrived to the most difficult and the most controverted part of our subject. The limits of our design forbid much proof in detail. Propositions will be offered, and must be accepted at present, which are the fruit of no small share of observation and experience.

* This state of disease is always attended with the greatest degree of morbid impression and derangement, called by some asthenia, connected with affections of the sympathetic nerves. The sthenia or high inflammatory state always supposes a less degree of morbid impression on the same parts; or after the more violent impression is removed; or that the principal locality was upon the more dense membranes.

The access of the diseases of the more violent grades, is generally most astonishingly rapid. Changes take place like electricity; but except in the instances of convulsions, spasmodic pains, and delirium, they pass unnoticed in part by the patient, and the inattentive observer; from this circumstance, that there is a kind of insensibility connected with the attack from nervous torpor. In the mean time changes are going on in the internal membranes of much importance. The action in the sanguiferous, lymphatic, and nervous systems, is unequal and perverted, and the whole to be suddenly destroyed, if not suddenly remedied.

The question is, what shall be done?—The scene becomes the most interesting, that the physician meets with. Decision, promptitude, and energy, should attend every step; not so much for the purpose of doing a great deal, as for the purpose of doing what is necessary with correctness and despatch. Nature cannot here sustain violence in any thing; yet remedies should be efficacious; but not such as greatly agitate and exhaust vital energy.

If our pathological views are correct, as seems to be warranted by symptoms and dissections, there is a retrocession of action and circulation from the surface of the body, the extremities, &c. and an accumulation of fluids to the internal and more essential parts, with inordinate vascular action. The great objects to be had in view are *to restore equality of action, and preserve the internal and more noble organs.*

The surface of the body claims our first attention.—Let warmth be immediately applied, if possible in a humid form. The universal warm bath is preferred, of moderate warmth, and continued for a good length of

time. If this is impracticable, let blankets be dipt in warm water, and applied extensively, several thicknesses over the whole body. Frictions occasionally used over the whole body by flannels, or a woollen glove, moistened in warm spirit, in which Cayenne pepper has been infused. As soon as these are got in operation, let three or four epispastics be applied; two of them should cover the ankles anteriorly, and two on the arms, a little below the shoulders. External warmth should be continued; but managed discreetly, or the applications may do more harm than good. The object is first, to restore warmth, then to promote diaphoresis, and next to support them. When these objects are obtained, the wet applications should be removed, and warm and dry ones substituted, and continued twelve, twenty-four, or forty-eight hours. These warm and moist applications are manifestly of particular service in relieving the tonic stricture of capillary vessels, both on the surface and subjacent parts.

Much must be left to the discretion of the attendant; and for want of some simple variations, the good effects may be lost. The air in the apartment should be free, pure, and moderately cool, and not crowded by idle spectators.

It may here be remarked, that from much observation, our conclusion is, that the state of the skin is too much neglected in general, in the cure not only of epidemic diseases, but also in the cure of a great proportion of internal inflammations in both chronic and acute diseases. Hence the use of blistering, frictions, bathing, anointing, &c. These are commonly mentioned as only secondary measures, when they are of primary impor-

tance, and are the first measures to be set about for the purpose of giving a favourable operation to other remedies.*

Blood-letting and puking often fail in producing their good effects, for want of proper attention being given to the circumstance of the application of warmth to the skin. From this circumstance, many have concluded that blood-letting is useless, or hurtful, when it is absolutely necessary, and might have been of singular service, if it had been accompanied with suitable warm applications to the surface. Steam of hot water is often good, but is apt to be unmanageable, and attended with too great heat.

How far Mr. Jenning's apparatus will succeed, I am unable to determine, having had no opportunity of proving it; we are disposed, however, at present to think favourably of it.†

The internal surface, of which the stomach is the principal, claims our early attention. Let this be rather invigorated by agreeable things, than debilitated by oppressive ones. Puking is apt to attend, and needs to be suppressed in this stage rather than increased.

* See Cullen on the manner of sweating.

† Since writing the above, a fortunate circumstance has put me in possession of Mr. Jenning's apparatus. It consists of a tube reaching from the floor to the patient in bed; at the bottom of which is placed a cup of burning alcohol, (common spirit.) The vapour or gas passes around the body of the patient, and gives a very agreeable and invigorating warmth, and without moisture. I have very lately made various trials of it, and it has more than answered my expectations; and cannot but regret not having known its use before now, in the treatment of spotted fever, dysentery, colic, &c.

If sweating succeeds well, the irritation is frequently removed from the stomach, which is very desirable. The stomach should be supplied with warm aromatic tea-drinks, such as sage, balm, saffron, thyme, orange peel, senega root, &c. Also coffee, tea, animal broths, if agreeable. Also may be used some of the more agreeable essences of box-berry, peppermint, lavender, cinnamon, camphire, ether, &c. in small quantities with warm water, and often repeated in such a manner as to be pleasant to the appetite, to promote sweating, but not sufficient to irritate essentially by their stimulus the heart and arteries. Upon this consideration such remedies should be given, as are of very diffusible and transient operation, to affect the lymphatic and nervous systems, without leaving any durable stimulus upon the arterial system. Pages might be written to tell what should *not* be done; but, for the present, in this stage of the business, it will only be proposed, that emetics, opiates, calomel, brandy, and other high stimulants, and whatever greatly agitates, be withheld, or used with much caution.

Many circumstances in detail on this subject will be passed over, for the present, whilst we hasten to the relief of the more important functions of the heart and arteries. These are gorged with blood, less perfect than in health. Congestions are already forming more or less, in different parts of the viscera of the head, thorax, or abdomen; according as the peculiarity of the predisponent causes, and constitutional propensity, may have induced. The object of the second part of our indication, is to preserve the internal organs from irreparable injury. The time is rapidly passing when our efforts

will be fruitless; let it then be improved. Immediately upon the application of warmth to the surface, and light diffusible cordials to the stomach, take a little blood; perhaps two, four, six, or eight ounces, according as the patient may bear it. If he is a little faint, it is nothing but what is common; a little time will remove it, as the blood-vessels contract. The patient should always be warm, and in a recumbent posture, when bled at this stage, which is supposed to be the first stage, and suffering under oppression. If the pulse is very small and trembling, it is no serious objection to taking blood; nor, in fact, if the faintness should be of considerable duration, will it be an objection to taking more blood, soon after the recovery from this condition. Patients bear a second bleeding, in this condition, better than the first; and the blood flows more readily. Large bleedings would not be proper at this time, but they should be repeated until pain, distress, and coma, are relieved. Proceed with caution; but be not over cautious of a little blood, when the safety of the patient requires it. The congestions must be prevented, or removed, and the free circulation promoted in the minute vessels, or all is over. What will do it?—Cordials, stimulants, tonics, have all been tried; yet no real permanent benefit arises. The patient may indeed sometimes feel a little more comfortable from a dose of opium, and a gill of wine, for a short time; but in every serious case he is sure to be left worse; unless, peradventure, *the case may not be so severe as was imagined*, and along with this the other curative means may have had a happy effect, and at length, he is found better; and at the same time very

willing to impute the benefit to the most agreeable remedy; and not only this, but is willing to attest his sincerity, and prove the skill of the physician, by repeating the dose;—it is done, and again: but shortly neither knows nor cares what is done!—The success of some cases of spotted fever, more purely spasmodic, and as connected with sweating, has given much celebrity to the use of opium and brandy; but as foreseen by many, they have not yet atoned for the injury they have done.

One circumstance must be adverted to in this place, and it is done with pleasure, to give credit to this best of remedies in suitable cases. The instances do not happen very frequently; but sometimes in spotted fever, and sometimes in dysentery, approaching to the character of cholera morbus, there will be an incessant puking, at the onset of the disease. Every thing that is taken, is thrown up, and the secretion into the stomach is so great, that seemingly four times the quantity is thrown up, that was taken down; resembling the vomiting of people dying of acute inflammation of the mesentery, &c. A large dose of opium, followed with brandy and loaf-sugar, is of singular service in such cases; possibly they may need to be repeated; but this as circumstances may require; but always having regard to reduce afterwards the febrile action, which they may induce, by blood-letting.

Let it be noted in this place, that the measures proposed, will most commonly succeed in giving energy to the heart and arteries; but in certain instances, in the attack of fever, and in certain other states of fever, from a recurrence of atony, perhaps principally from a neg-

lect of mild cordials, and neglecting warmth, the patient is alarmed with what is called a sinking state. If this should be any considerably threatening, a moderate dose of opium may be interposed. In these instances, the recovery should be principally trusted to wine and essences, with external warmth. No more should be given than to support in a moderate and judicious manner. In these conditions, if the pulse is slow, as well as retiring, the chance of success is very good. If the pulse is very quick and retiring, the highest stimuli will generally be ineffectual. It is safer to trust to moderate stimuli, and the returning energy of the heart, than to be over solicitous, and stimulate beyond what the system is capable of bearing.

But to return;—it is objected by some, that the prostration of strength is great in the system generally, and in the arterial system especially. It may be granted; but what is the particular nature of this debility? Was not the patient strong and plethoric, a few hours before? Has he not been free from any great evacuations?—Not only this, but we know that evacuations made from a person in health, to a great extent, do not produce the degree, nor the kind of debility, we now discover. Every symptom and circumstance discoverable warrants the conclusion, that it is debility from *oppression;* that the system is suffering violence and danger from an unequal circulation; engorgement in some organs, whereby their functions are hindered, and the system at large suffers for the want of the usual discharge of their offices. This is conspicuous in the lungs and brain more particularly; it is not now, strictly speaking, inflammation, but con-

gestion. If the patient survives this stage, another and more common concourse of symptoms supervenes, and often very quickly.

Further, it is agreeable to the laws of physiology, that congestion in the head, by pressing the brain, and perverting the functions of the nerves, should induce debility, and even paralysis; and a little more induces apoplexy, and even death. All these stages actually have been witnessed in the onset of every epidemic fever of any importance; perhaps more particularly in that species called spotted fever; as its principal seat of locality is mostly confined to the head. We have here to contend chiefly with the first grade of impression, viz. congestion, not inflammation, provided we go about it in season. It is, at the same time, something more than mere mechanical pressure; there is a violent propensity to vascular action, constituting the very essence of fever; but the large vessels cannot act naturally. Why?—For this familiar reason; that they are too full; and also that their ability of acting is diminished from an abstraction of nervous energy. What shall be done? Shall we fold up our arms, and say, *his time is come!* when he might be relieved in many instances with a little exertion? We do not always have the opportunity of seeing, and doing what is necessary for our patients, under the most propitious circumstances. Human judgment may fail; illiberal opposition is wont to have an insensible effect upon the most inelastic mind. But still the principle is plain, and should be persisted in; not only cases, but years of observation confirm it.

In certain habitudes of fever, affecting the abdominal viscera more particularly, a certain train of symptoms arise, in some measure resembling those from cerebral affection as to debility and prostration of vitality; but still, in many particulars, they are attended with different phenomena. The general indication, notwithstanding, is the same; and very nearly the same applications at the onset of the disease. By pursuing a depleting method, with external applications, in due season and quantity, the small, quick, receding, or vacillating pulse, in dysentery, in spotted fever, in gastritis, &c. may be changed most commonly into a more full, slow, open pulse of the more distinctly marked sthenic diathesis; and when in this state, becomes very manageable, and the patient removed from the highest grade of danger.

The objectors to this management say, that the system is in a manifest state of debility. This is granted; and for the very purpose of removing this debility, warmth is applied to the surface; it is the first thing proposed, and the most to be relied on of any one application. Life cannot be supported a moment without an adequate share of heat; it is indispensable. Hence the great provision in the system for the generation of heat. In disease, that is, in the first stage of fever, this power of generating heat is diminished; and if the cause of its failure is not removed, in part at least, the ability of generating heat will be destroyed, which is nothing different from a state of death. With this view, and to avoid this calamity, heat, which is stimulating, is applied to the surface of the body, which is at all times to be approached; and also this is the very part, that suffers most from an abstraction of energy.

The impoverished vessels of the surface are again brought to life, and filled with fluids for their own support, and for the relief of other parts, that are suffering from an engorgement of retrocedent fluids from the surface to the centre. Whilst debility prevails, the stimulus of heat must be continued, or until the circulation is permanently established on the surface; when this takes place heat should be diminished.

The variation of these measures should be determined by the physician. His judgment should be formed by experience, and this will enable him to suit the peculiarity of treatment to each particular case. As an appropriate degree of the stimulus of heat is necessary to the life of man, so any degree of cold or abstraction of heat from this salutary point, is an assault upon life.

It is still objected with respect to blood-letting, that this is a debilitating measure, and abstracts a portion of heat. It is replied, that this is not debilitating, where the vessels are overloaded, but that it is actually invigorating in these circumstances, as can be proved upon physiological principles, and demonstrated to the observer. The case under consideration is where the repercussion is great from the surface to the central great vessels, attended with anxiety, coma, &c. The demonstrable fact is, that by diminishing the pressure in the heart and great vessels, their action is more energetic, the remainder of the blood is better circulated and distributed to the capillaries, carrying along with it heat, which further contributes to relax stricture, open obstructions, promote sweat, and give equality of excitement. If it fails in doing this last effectually, it has the effect of giving freedom and expansion to the circulation, and thereby changing

an otherwise incurable state of disease, of what is called malignant or ataxic, into one that is generally considered much more manageable, called inflammatory or sthenic.

If it should still be objected, that the debility is alarming, and reduction will not do, let it be remembered that life may be sustained by a very feeble action, and by stimulating we frustrate our own designs by increasing the action beyond the ability to support it.

Let us for a moment put aside all reasoning upon the subject, and advert to facts. We do know that by bleeding, momentary relief is obtained from the pain between the eyes in spotted fever, immediately after the attack; also pain generally. We are also sure that the pulse grows larger, and approaches more towards those states of fever, that are more manageable. We are also well assured, that the circulation becomes more natural in every part of the body by this operation, and that it is the surest remedy at our command to remove cold chills. We have not experienced the injuries contemplated by some although we have had the fairest opportunity; not only in the last mentioned disease, but also in epidemic pneumonia, in dysentery, and in angina, in their most alarming appearances.

From what is now urged in favour of blood-letting in the commencement of fever, it need not be understood, that it is proposed as proper in every case; far from this; many cases appear of a milder nature, which do not require this remedy so early, nor at a future time, so largely. Again, many cases appear more purely nervous, and without much pain or coma, with a very feeble pulse.

Bleeding unquestionably should be deferred in these cases, until symptoms may demand it more; and in the mean time the patient be treated with sweating, blisters, and mild cordials, until pain, quickness of pulse, or coma may require it.

A further consideration of much importance, in this place, is, that if we feel under the necessity of giving opium, ardent spirits, wine, &c. to keep up the energy of the nervous power in any particular case, our patient will feel more present benefit by a little emptying of the blood vessels by bleeding, and will not be so likely to suffer from the after consequences of the stimulus. From much observation, it appears, that in the present instance of supposed mere congestion, it makes but little difference from what part of the body the blood is taken; the arm is generally preferred.

A few hours of the case having passed by, the physician will have time to consider, whether it may be expedient to give an emetic; if he has already vomited, it may not be necessary; if he has not, it may be necessary to give a very gentle emetic. We are now supposing a very violent attack under the preceding circumstances; if the case is moderate, free use of emetics may be indulged, and they will often assist in distributing an equal action to all parts of the body, and assist in removing disease. But in the more serious and alarming cases, their operation is often hazardous; they are apt to go to excess; they propel the blood into the brain, and if they are not successful in promoting the circulation on the surface, and overcoming the capillary torpor, may do much hurt. Notwithstanding, if there is no vomiting, if

the patient does not sweat, and especially some nausea attends, it may be proper to give an emetic, but of the smallest dose, that may answer the intention. It ought to be kept in mind, however, that where there is a deficiency of vital power, emetics are of doubtful, if not dangerous tendency.

As a further means of acting upon the internal surface and thereby exciting universal action in the system, cathartics may be employed under various circumstances to suit the particular habit of disease. In almost all cases they become useful after the first state of depression has passed away in part. They relieve the head, and, under prudent management, assist in relieving congestion in every organ, and thereby give energy universally. The necessity of their use is different in different habits of disease. In cases of great prostration of strength both cathartics and emetics are of doubtful tendency in the first hours of disease. They expend more vital energy in proportion to the relief they give, than is done by bleeding and sweating. As soon, however, as the system begins to emerge from the state of dangerous depression, they become useful auxiliaries, and much depends on their assistance to relieve torpidity, and promote equality of excitement. The revulsions and evacuations they make are often indispensable.

In those cases of severe attack in epidemic fevers, attended with the preceding symptoms and circumstances, if the action of the system does not emerge spontaneously from its depression, if it is not relieved by art, and at the same time is not sufficiently powerful to prove suddenly fatal, a concourse of symptoms arises that are

truly alarming, and such as have been denominated *malignant and putrid;* but it would be well for the science of medicine, if these words were expunged from our dictionaries, as they too often lead the mind into error, like other qualifying names of diseases.* But to return, this condition of disease is manifested, in a considerable degree, in the first onset; in a short time is made more manifest by an increase of symptoms of the former attack, and some new ones, as is sufficiently described by different authors treating on the several diseases so named. *See Sect. 3.*

The business of the physician is to prevent this black catalouge of symptoms if possible by timely applications, and so change the state of action, that the system may rise into universal high state of excitement. The business seems some times, when improperly managed, to proceed in this manner;—take the preceding condition of the case alluded to in the extremity of the first attack, but suppose it not so violent as to prove suddenly fatal;—let the patient be treated with tonics and strong cordials, and avoid evacuations for fear of lessening his strength;—also avoid external warmth;—the sanguiferous system labours vehemently to restore the derangement made by the first impressions, but is unable to do it;—the torpor or hindrance in the capillaries is great and cannot be overcome by the energy of the heart, now already em-

* If the qualifying word *malignant* were to be used to express merely an aggravated or high state of febrile impression, there would be little objection to its use; but if used as synonymous with putrid or pestilential, or to express any particular quality of disease, its use becomes very objectionable.

barrassed with a cumberous load of contents; it acts spasmodically; the strife and distress are great; but by and by it grows more feeble; the excitability is in part exhausted; the disoxygenated blood begins to escape through the tender weakened ves·els; or begins to stop in the congested ones; the pulse quickens but grows weaker; as excitability retires, sensibility accompanies it; our patient grows colder and feels more easy; and in a perfect state of indirect debility, "glides down the steep descent," with much composure.

In some conditions of fever this irrecoverable state comes on much sooner than in others. But it is sure to approach sooner or later in all fevers of any considerable importance, unless the *primary derangement is overcome* spontaneously or by art. In yellow fever, angina, and spotted fever, it requires only a few days commonly; in typhus fever, as many weeks.

With a view to avoid these calamitous events, we must look to the consequences of the present derangement; ("*respice finem*";) and from the first hour, calculate the probable issue. But we are called oftentimes to the bedside of the patient under very adverse circumstances. Time may have passed that was precious; something wrong may have been done, or something useful may have been neglected; or we may have to consult with a man of different views, who must have his way in part, if not wholly. Let what will happen, our object in the early stage of these depressed cases, is to help the natural exertions of the system to diffuse an equal and energetic action over the whole. Only remove the obstacles, and nature will do it, if moderately assisted in season. If

the obstacles are not removed in season; the indication still remains the same, to assist all we can. But it must be understood, that our observations, when speaking with any positiveness, are founded on the presumption, that our patient has all the advantages of time and opportunity; and then it will be asserted that there is a great probability of success even in the most forbidding conditions.

It is asserted by some, that the disease should be taken out of the hand of nature, and cured. This is true, in a certain degree; for the enthralled operations of nature lead to destruction; but when emancipated, conduct to health.

Let us return more particularly to the object before us. Our patient has passed perhaps twelve hours of his disease, and four of them under our management. Does he sweat freely with general warmth?—has he vomited from the emetic?—does his pulse expand a little more?—has his pain increased since it was mitigated by his former bleedings?—if so, let him be bled again; and continue the external warmth, and also the most agreeable nutritious diluents. There is hope, that the disease will be diffused over the whole system, and eliminated at every pore in due time.

Propositions may be laid down, but they must be general. Unlike all others, the art of medicine must bend to the case of the patient;—prescriptions may be straight on paper, but they may not suit the curved case of the patient; this may have as many points as there are degrees in a circle; therefore it is said, every man may be a theorist, but every man may not be a practitioner.

This consists in a facility of arranging the remedy to apply to the particular case of disease. It is the product of laboured culture in a congenial soil.

SECTION II.

On the second stage of fever, or high excitement.

We have passed in a rapid and rather insensible manner from the first consideration proposed to the second. It is now supposed, that the patient labouring under any violent epidemic disease, has emerged from the great degree of prostration of strength and oppression, which is often alarming; and it is now supposed that the responding action in the system is violent, with pain, perhaps coma, or delirium, and other signs of violence in some of the essential organs.

The particular condition of the patient may be changed, but our indication is not changed, and will not be until he is cured. Although the heat may be equal over the whole system, yet equality of action is not yet restored in the absorbent system;—if it were, ease and health would be the result. Nor are the internal organs safe, but still suffering.

It is hoped a little digression will be pardoned, while we indulge in a few pathological similes, which seem to appertain to the present subject. Much unprofitable disputation has arisen upon the consideration, whether the general diathesis produces pain and local affection; or whether the local affection produces the fever; which has thereby been denominated symptomatic by some. Without going into any recapitulation of the different

arguments, it will be asserted, that they are both from the same fountain, are similar in their nature, and to be relieved by the same remedies. Sometimes the pain is discovered first, or before the febrile diathesis, as in strangulated hernia, in colic, in pleurisy; in various parts in spotted fever, &c. Sometimes the fever is clearly manifest, before there is any considerable pain or local affection; and when the pain affects a certain part, it is liable to be translated suddenly to some other part, until such time as the general diathesis is overcome by proper remedies. A person possessing a well balanced habit, not liable to local affection, may receive an impression of disease, and it may have made some progress before such local pain excites attention. At the same time it is often observable by valetudinarians of an irritable fibre, and such as are moved by slight causes, that upon a little exposure to cool damp air, they will be attacked with pain somewhere, before they have thought of being exposed; perhaps it may be in some of the internal parts; it may be in a defective tooth, or in some of the membranes of the firm parts, where they have formerly been affected with rheumatism; or perhaps it may be in the muscles in the form of spasm or cramp; and this last develops the true character of the pathology of the affection. It is all cramp; or if you please, nervous stricture, tonic spasm, permanent torpor; or if a more technical phraseology is required, the reader is requested to suit himself.*

* Although these terms have been used rather indiscriminately, it may be understood, that tonic spasm is meant more par-

In the first place a sort of constriction or corrugation is distinctly felt in the skin by the patient, and discoverable by sight; perhaps attended with slight chills, and perhaps not. Warmth is agreeable; cold is forbidding. Perhaps these changes pass unnoticed by the person if his mind is engaged, until he is warned of his danger by pain, which is only another part of the same constrictive operation. Perhaps this slight affection may be removed by a slight perspiration; but suppose the impression to be more violent, and of some longer continuance, and in a subject predisposed to extreme irritability by the causes mentioned in Chap. III. and we have before us a case of violent epidemic disease, which claims our most assiduous attention. From a perversion of one organ, an injury is offered another, until perhaps the whole concatenation of healthy action in the system is broken.

Possibly there may be a time in the progress of this business, when cordials, and those medicines that are called stimulants and antispasmodics, might be useful, and even overcome the impression; but this time is very short; it unquestionably is in the very beginning, when the subject feels most commonly a sensation of faintness at the stomach, or a desire for food. This soon passes off, and commotion arises in the several functions, when

ticularly to apply to the first impression, which is made in the system through the agency of cold and exciting causes. Torpor or impermeability should apply more particularly to the after conditions, that are discovered to exist in the very protracted state of fever and in chronic complaints; it is therefore called permanent. It must be likened in this case to a state of paralysis; it is what was formerly called *obstruction*. See Chap. IV. Sect. 2.

food and also high stimulants are abhorred, and indeed ought to be.

To return more particularly to the subject before us; it is now supposed, that the disease is beginning to show its true character, by a more expanded operation and diffusion of action through the sanguiferous system; but yet it is not perfect. The pulse quick, hard, and more full than before; if pain was mitigated by former bleeding, it may have returned with violence. The stricture on the capillaries is not removed; the heart and arteries act powerfully; the tension of the blood-vessels is great, and must be relieved before the disease can be removed, or even rendered safe. The fulness and tension possibly may be relieved by emetics, catharties, and other evacuations by the natural emunctories, if the patient is able to survive the long period necessary to accomplish it; and at the same time, this method would be more justifiable, if we were sure that no important organ would suffer in the long conflict. But we are not sure of this; inflammation may commit great ravages in a part essential to life, and in parts not so immediately necessary, abscesses may form and waste the system. The greatest danger of all is, that the excitability of the system may be exhausted; indirect debility induced, when the case will assume the character of malignant, pestilential, nervous, or putrid fever; or all together, as best suits the views of the physician, or the feelings of the friends.

With a view to avoid these evils, let us go about a method of cure, that is rational and justifiable from long experience. The very same means, that lessen pain and

relieve the tension of the arteries, tend also to relax the stricture in the capillaries, and give freedom to the absorbents. Hence the indications of cure are not so numerous and complicated, as we are often required to believe.

The simple rule is to take blood at repeated bleedings, until an easy balance is established between the heart and larger arteries on the one hand, and the capillary and absorbent systems on the other. It is altogether immaterial how many bleedings may be necessary; this depends on the quantity taken at a time, the violence of the disease, and the personal circumstances of the patient. It will be best to take pretty full bleedings, and save the necessity of frequent repetitions. Large bleedings overcome the diseases of high excitement with the loss of less blood in the whole, than can be effected by smaller bleedings. Blood should always be taken in the paroxysm, if discoverable, of distress and fever. It should also be accompanied with external warmth, with a view to relieve the stricture on the surface and promote diaphoresis. Bleeding is the greatest of all remedies to excite diaphoresis in high arterial action with febrile heat, and the boasted effect of opium tends to suppress it.

The very general effect of adequate bleedings is to relieve pain, to relax the constriction of the capillary vessels, to remove cold chills with distressing sweats, and to promote a salutary diaphoresis.

The number of bleedings must be determined by the circumstances of the case. A very mild case may do without any; one a little more severe, may do with one bleeding, and so on. Some cases require five or seven

bleedings. In a severe case it will be impossible to take sufficient blood at any one time to render it tolerably safe. Suppose the symptoms are rendered mild by it now; yet in a few hours, perhaps the responding action rises, the force is increased in the heart and arteries with pain, &c. and repetition becomes necessary.

Let us attend, for a moment, to an objection made by some to the use of blood-letting in fever. It is asserted that upon one or two bleedings, they have found their patient labouring under more heat and pain than before, and are sure the disease was aggravated by it, and have therefore desisted. True, the state of action is altered by it, and this is the very thing desired; only pursue; take blood, until the violence of reaction is subdued, and the patient is out of danger. The road is plain; and the way faring man need not err therein.

It is of the first importance, that the patient be bled freely in the beginning of the disease, before congestions are fixed, the membranes inflamed, or the system become habituated to diseased action. If this is judiciously performed along with the use of sweating and other simple remedies, the disease may be stifled in the beginning; if it should not, the system will be enabled better to bear the after evacuations, that may be necessary to overcome the febrile commotion. If bleeding is omitted for some days, the patient does not bear it so well, and it does not do him so much good. Spare bleeding has always misled superficial observers into numberless errours; and they have been induced to impute the fatality of the disease to the very means that, under a timely and energetic administration, would have restored the sufferer to

his now disconsolate friends. Notwithstanding the puerile objections that may be brought against this practice, the names of the greatest luminaries of medical science stand recorded in vindication of it; to mention a few only, would be injustice to many.

Whilst urging the use of these means, it should not be understood, that there is no limit to be set to them. Much attention and judgment are necessary to balance between extremes, particularly in such diseases as are subject to sudden and manifest remissions; for in the state of apyrexy, the system may suffer from too great abstraction. This however it to be considered, that such diseases do not require so great depletion to render them safe. To discriminate in these circumstances, the character of the epidemic must be considered; as whether it is liable to distinct remissions or apyrexy. At all events this violence of paroxysms must be moderated; and general opinion is against a sufficiency of depletion.

A diaphoresis should be encouraged by the gentlest means; the emetic will promote it; but let the determination be to avoid the heating alexipharmic medicines, composed of opium, spirit, and their deleterious auxiliaries. They increase the inward flame and bind up the cuticular emunctories, and along with too heavy covering and heated rooms without diaphoresis, drive the blood into the internal organs, and fix the fate of the patient.

It must be here, and every where, kept in mind, that the action must be kept up on the surface more by external warmth, as baths, steams, frictions, &c. than by internal stimulating medicines of any kind. These last

stimulate the heart and arteries more than is proper, whilst their effects are but little felt in the remote and torpid capillary vessels on the surface or skin. Whilst moderate stimulants or cordials are used internally with mild and agreeable nourishment, let the weakened surface be invigorated by warm and agreeable applications. These warm external applications are truly invigorating, and have even something like an exhilarating effect. They restore warmth to the impoverished surface, invite the destructive pressure from the over replenished viscera, and equalize excitement in every part.

In the state of weakened action on the surface, which prevails more or less in all epidemic fevers, it becomes an object of the first importance to be constantly watchful to see, even after the excitement has been restored on the surface, that it be not suffered to subside too soon; if it should, there might be a retrocession of action with chills, faintness, distress, &c. In this condition the remedies will perhaps all need to be renewed again, and persisted in, until warmth and external vigour are restored.

Those epidemics, such as angina epidemica, which have an eruption on the surface with high action, bearing a resemblance to the measles or small-pox, need but little external warmth, compared with those which have an internal determination, such as dysentery, spotted fever, &c. In the former more bleeding and less sweating should be employed, whilst in the latter, less bleeding comparatively, and more sweating. In making these general observations, it is hoped the meaning of the writer will not be misapprehended. It will be noticed that the observation is intended to apply to those cases

attended with high action, or inflammatory appearance, in which but little heat ought to be used. Many cases appear of a different state, with little or no eruption, or of darker colour, as in angina maligna, with much prostration of vital power and internal determination, in which external warmth is very beneficial.

Conjointly with judicious bleeding and proper sweating, moderate emetics may be employed, if puking from irritation is not present; perhaps one every evening or every other evening, as the circumstances of the case may require; but the distressing practice of perpetual nauseating doses of emetics, should be abandoned. In the intervals of vomiting, the system should be refreshed with agreeable nutritious and diluent drinks.

Cathartics may be employed to evacuate the primæ viæ, and also to excite the action of the absorbent system by directly exciting the lacteals, and by sympathy the whole lymphatic system; and also by the evacuation they make, do something in relieving the tension of the system. The first cathartic employed in this second stage, may be calomel, combined with some common place physic, such as the common pill or rhubarb, &c. but the after operations, which may be repeated perhaps every other day, should be composed of a proportion of the neutral salts, joined with mild purgatives. If the disease, however, should be continued for any considerable length of time, calomel may occasionally be interposed as a cathartic.

Blistering should be used on different parts of the body, according to the violence of pain. They should generally be applied to the pained part. In delirium they should

be applied first upon the anterior part of the ankles, and next upon the back of the neck. In case of low and protracted fevers, a blister should be applied to some part of the body about every twenty-four or forty-eight hours, unless strangury forbids it.

Particular regard should be had to the state of the skin. By far the greater part of cases in epidemic fevers requires a considerable degree of warmth; more particularly if perspiration can be promoted by it; and it should be used sometimes to bring forth a moderate and even profuse sweating; sometimes, however, the heat will be extreme on the skin, and it seems impossible to induce any sweat by reason of too high excitement. In such cases, wetting the body with cold water by means of linen cloths, has been useful; and especially the head, if there be much pain or delirium. This will be more safe after proper evacuations, especially by bleeding, have been made.

The use of cold water by ablution is not proper in the commencement of fever; and only in those high states of temperature, that sometimes take place in all fevers, and more frequently in scarlatina anginosa. It is often a doubtful remedy, and not to be employed unless clearly indicated. It is not to be used where there is internal pain and local inflammation; and only when there is an equally diffused action; and a well directed use of other remedies will supersede the use of it in nineteen cases out of twenty. Linen cloths dipt in warm soap suds, and applied from the feet to the hips, will often supersede the necessity of applying cold water to the head, and is better adapted to the final cure; for if

cold water is applied too early, while pain, stricture, and congestion, are permanent, the reaction, that occurs after its use, is often alarming.

Whilst considering the use of cold water externally, we will advert to its use internally. In certain cases of high excitement, manifested by hot skin, and dryness in the mouth, and internal surface by extreme thirst, and especially after some continuance of the fever, with an abatement of local pain, cold water becomes a sovereign remedy. The patient may take liberally, if it continues to be agreeable to him from a few repetitions, and if it throws out a sweat. It quiets the erythysm of fever, and often under these circumstances, produces a solution of fever. Our custom has been to admit small quantities of cold water occasionally in every stage of fever, but most sparingly in the beginning. After the first stage of depression has passed by, the patient may take more liberally if desired; and it may be observed, if moderately indulged in the first stage, there is seldom a necessity of very large quantities in the after conditions of fever.

Acids and the common neutral salts are beneficial in the higher states of excitement. It will only be observed, that the neutral salts of which nitre and cream of tartar are principally in use as alteratives, should be given in much larger doses, than is commonly practised in this part of the country.

In the state of high excitement and febrile commotion, every thing that has a tendency to agitate the mind of the patient should be avoided. All business and every thing of a vexatious nature should be guarded against;

he should be soothed, quieted, and comforted by all around him. Whatever may act upon the senses with any force, should be avoided; such as much light, sounds, offensive smells, high heat, or painful impressions; in short, what has been called the *antiphlogistic regimen*, should be strictly adhered to.

Although epidemic diseases may be considered as of one family, and have many things in common, as respects their cause, symptoms, and method of cure, it must notwithstanding be observed, that considerable variety prevails in their appearance, as respects particular characters, modified by a peculiarity of morbid influence inducing local impressions. In consequence of these varieties, and as arising principally from local affections, different remedies become useful to suit such particular habits of disease. A consideration of these must be deferred, and attended to under the particular diseases.

SECTION III.

On the third stage of fever, with exhausted excitement or indirect debility, and other states.*

We will now, having attended to the two first of the primary considerations proposed, pass to the third; and

* The writer has had some hesitation, whether to employ this term, or substitute some other. His chief concern is to be rightly understood, and is little solicitous through what terms. *Debility* is used to express the torpor of the part before responding action takes place, as, in the sudden numbness from cold; *indirect debility* is used to express that state which takes place after high responding action subsides by an exhaustion of vital energy or irritability; as in gangrene or death following a benumbed limb after inflammation.

this is done for the purpose of making a few observations only. Our indication remains the same; it will therefore be considered a very broad one. In fact it is universal. Inequality of excitement is not confined to the sanguiferous system; every part of the body may be warm, even very hot; at the same time the absorbent and nervous systems may be dormant, or in a perverted condition. Health consists in a free exercise of all the functions. And furthermore, whilst there is a depraved action in the system, even if this is not attended with much distress, some of the delicate organs may suffer injury, or the integration of the fluids may be destroyed.

The former condition of diseased action may have terminated in health, or in a state of convalescence, in which the physician has but little to do; this may be considered as the most common event, when the management has been judicious. But the case may be otherwise. Fever of a moderate type may continue, and yet exhaust the vital principle after weeks or months. It may continue for a much longer period, and in the character of some chronic disease, destroy some essential organ, or impede and render useless such organs by collections of extravasated fluids. Therefore from febrile impressions being only partially removed, may arise what is called typhus, or continued fever, putrid nervous fever, &c. as also pulmonary consumption, atrophy, mania, dropsies of the cellular membrane and of cavities, diarrhœas, cuticular eruptions, &c. together with many more of those which have been called more particularly nervous diseases.

It may be understood, that the previous observations on the cure of fevers in general have been intended to

apply to the more violent conditions of fever; but this is not the most common form in which they appear. The access is often mild and deceptive. When the more violent epidemics rage, a considerable proportion may be moderate, compared with those that are most violent.

Again, it is often the case that the character of the hurtful principle in elementary diseases may be such, as most commonly to induce a fever attended with less violent symptoms, as in typhus and intermitting fevers. Furthermore, the hurtful principle may be still more insidious and dilatory, and in conjunction with some constitutional liability, make an impression on the more delicate organs in the lymphatic vessels, &c. which progress slowly, but unless removed, will destroy the system after a protracted and uncertain period. Examples of this are found in phthisis pulmonalis, dropsies,&c. which are not now considered as the sequel of fever; for the primary changes were not so violent as to induce any thing more than a common cold or some slighter affection. These milder impressions and derangements are often very permanent, and eventually, though insidiously at first, frequently destroy the system, unless removed by art.

If the impressions are violent and extensive, and the propensity to vascular action free and appropriate, high excitement and speedy termination will be the result; if, on the contrary, the changes are less perceptible and comparatively mild, and the lesions smaller and in a part less endowed with susceptibility of action, and in a subject possessing less constitutional irritability, the symptoms will be more mild, and the termination more protracted.

By this climacteric view of the subject, we gain a familiar, rational, and incontrovertible prospect of a great proportion of the diseases incident to human nature; and can trace, from the lowest grade to the highest step of morbid excitement, the various degrees of febrile action with their varied tendencies, and also apprehend a *rationale* of the various periods of termination in divers states of diseased action.

Let us fix our attention more particularly, for a few moments, on that condition of fever, that is called putrid or gangrenous, which is said to occur more frequently at the fatal close of fever. It is noticed by some to occur in those fevers that destroy life within the first day; in others at the end of the first or second week; and in other cases at the end perhaps of four weeks, &c. It is seldom, that at these different periods the same identical concourse of symptoms attend every case; but the general discriminative symptoms are present. Whoever will take the trouble to cast his eyes over the books of common place writers, will find that nearly the same, and all the principal symptoms are alike at the fatal close of the plague, yellow fever, spotted fever, pneumonic fever, angina epidemica, dysentery, typhus gravior, and mitior, &c.; and whoever has had a view of the unfortunate termination of these and other fevers, must have noticed a very considerable proportion of the symptoms present, that are said to denote a malignant or putrid state.* Even the spotted fever, that terminates in

* The principal symptoms are, great prostration of strength, paleness, coldness of the skin, cold sweats, wildness of countenance, partial loss of sight, very weak and quick pulse,

a few hours, shows a darkened colour in the petechiæ, if they happen to be present, and the patient has been said to be struck with mortification.

Now it appears demonstrable, that all these symptoms are the consequence of high excitement, terminating in debility from excess of action, which may be called indirect debility; and that the period of termination depends upon the degree of lesion done the system, and the particular previous state of the system of the person affected;—saying nothing at this time respecting the treatment.

The distance of time from the commencement of the disease, when these symptoms take place, is of no consequence in a general point of view; it may be sooner, it may be later. Those cases where reaction never takes place on the surface to any considerable degree, and which prove fatal during the first day, may be said to terminate by indirect debility; for in all these cases, a vehement attempt in the heart may be discovered. The heart labours excessively to overcome the resistance, but this is so fixed that it is unable to do it. In these cases, although the greater part of the system remains dormant, or in a state of direct debility, yet the labour of the heart brings on indirect debility in that organ, followed by death.

In such cases where the cause is violent, oppression great, rapidity in the pulse, &c. the termination will be

starting of the tendons, sighing, &c. Oftentimes hickups, puking, involuntary stools, black tongue, difficult swallowing, petechiæ, purple colour, vibices, &c. *See a simile, latter part of Sect.* 1.

speedy; in such as are on the reverse of these, the termination will perhaps be after several weeks; as in typhus mitior, &c.

Our object ought to be to obviate these fatal tendencies by timely relieving the oppression of the heart and arteries of their burden, mitigating pain, stupor, delirium, &c. by evacuations proportioned to the exigencies of the case; also to invite a free circulation in the minute vessels for the purpose of saving the excitability or vital principle from exhaustion, the fluids from destruction, and the patient from death. These methods should be set about instead of stimulating the patient with opium, calomel, wine, bark, alcohol, and all the alexipharmic round, with the same assiduity, that the inebriate clings to his fatal bottle. It is not doubted but that the patient may often need a little agreeable refreshment, suited to the delicacy of his condition; but the practice of high stimulation is as preposterous and contradictory, as to apply ether to extinguish flame.

All fevers are disposed to show signs of debility and putrescency more or less in some one or other of their stages. The great secret of the *Methodus Medendi* is to turn this state of action into what is called phlogistic or sthenic more or less, and then reduce it to a healthy action by suitable and mild measures; but it is not to be done by high stimulants; they over-act the tragedy. Give freedom to the circulation by evacuations, suited to the condition of the case;—excite the capillary system into universal action, by the remedies already suggested; support the stomach with agreeable refreshment in a liquid form; and the patient is commonly safe, if early practised.

It is true when a person has advanced to this deplorable state, he is weak, and so he was the first hour of his sickness; and the cause has been gaining strength in proportion, as he has grown weak. If the cause had been weakened by suitable remedies his strength would have been gaining. Our observations have gone back with our views to the beginning of the case, notwithstanding we set out to treat of the sequel, or last stage of the fever, ending in the deplorable state of indirect debility or putridity. We go back in an involuntary manner to take a painful review of the condition of the patient, when the most that we can do, is to lament, that we can do but little now to save him. He may be supported with the common cordials and tonics, peradventure the last struggles of nature may, if no essential organ is spoiled, restore the system, like a convulsion, to health.

Bark and wine, elixir vitriol, seneca, carbonic acid, lemon juice, malt bath, wine whey, broths, &c. may be tried according to the discretion of the physician. If they do no good, they may not do injury in a case already hopeless.—This distinction, however, may be kept in mind, that there is more hope of success in those cases of recent standing and rapid progress, than in those of more continuance; as secondary consequences or ravages in the system from diseased action, are not so great. It should be noted, that the above medicines are but rarely required in very large doses; they are much safer and commonly more efficacious, exhibited in a gradual manner and accompanied with lenient cathartics and small portions of neutral salts. If the patient is not too greatly

exhausted a mild emetic will occasionally be very useful. Permission will be granted for one further observation here, that those, who are attentively watching to obviate the much dreaded debility, are liable to resort to tonics and stimulants too early, and before the febrile diathesis is so far subdued, as not to be aggravated by them. This is a critical point. This paragraph may be finished with the suggestion;—that those cases which will not do well without high stimulants and tonics, are not very apt to do well with them.

With respect to the management of protracted fevers, from the fashion of the day, called typhus, it will be necessary to see well to it, that they are removed in season. We have no excuse for want of time;—we have no excuse, but that we are in possession of powerful remedies to alter the action of the system. Our principal excuse, if any, is a want of judgment to apply them rightly. Let the former indications be pursued;—avoid high stimulants—supply the patient with light and agreeable food and drinks; but be careful to remove the derangement in the minute vessels, for health cannot be restored, so long as any considerable vice exists there. Although the case may be so moderate, that the patient does not fall before it suddenly, or at the end of forty days; yet it will consume him at length in the form of some chronic disease, if not removed.

It should here be observed that in all protracted fevers and even those of shorter duration, if the patient has been suitably bled in the beginning, he will receive more benefit from the after bleedings than otherwise.

Shock the system every twenty-four hours, or there-

abouts, with a mild emetic—keep the bowels open with mild purgatives, alternately with calomel and Glauber salts. If a diarrhœa supervenes, be not too assiduous to stop it; neither be too officious to staunch a purging of blood, that sometimes comes on; this however is a rare occurrence, when sufficient bleeding is early practised.

Keep the skin moderately warm, frequently to the sweating point; use frictions, blisters, &c. By these means judiciously persisted in, the patient will be gradually gaining strength, and overcoming the disease; alarming symptoms will be avoided; and also that train of chronic affections, which so frequently proves fatal. The objection that signs of debility forbid this practice is without foundation; the true theory of the disease demonstrates, that it is debility of oppression, and verging to the indirect kind from excess of action. Years of observation confirm this;—as well may we say, that evacuations should not be made in pleurisy and apoplexy, because debility appears.

Whilst penning this page the 3d No. of the 3d Vol. of the New England Journal is put into my hand, and turning over the pages hastily, a sentence struck my eye, which although contrary to the method adopted of quoting authorities, the desire can hardly be suppressed to insert. It is an observation of the Editor in the review of Dr. Thomson's Publication, on the subject of blood-letting: "We believe that new facts will shortly come before the publick in corroboration of these observations; and we can refer to several of our late numbers for ample testimony in favour of bolder, and more decisive measures in febrile diseases, than the asthenical

phantoms of a tottering theory have yet permitted the generality of practitioners to adopt. We shall conclude this part of our review by a quotation from our author, with which we are much pleased."

"There is therefore too much reason to suspect that the term debility, by which of late years every morbid symptom has been supposed to be explained, is a mere *asylum ignorantiæ*, into which the pathologist resorts, in order to conceal the defects, and the paucity of his knowledge."

Observations, like these, are consoling to one, who has borne the heat and burden of the day.—Go on, dear sirs; and may your labours be instrumental in dispelling the clouds of errour, imposition, and medical sophistry, which have so long obscured and dishonoured the science of health.

CHRONIC STATES OF FEVER.

Our attention may be turned a little towards those diseases, that are considered the sequel of fever. If the derangement in the system is slight, made by the common causes of fever and not removed, they become more permanent from continuance. If the first impression was more violent, and removed only in part, the case is similar to the one last mentioned. The fever in both cases remains, but not sufficient to destroy life after the manner of the diseases more commonly called fevers. Time is necessary for the morbid cause to develop itself in its true character. This will be diversified according to the most prominent local affection, and numerous other circumstances.

It is common for universal and also partial dropsy to follow a rheumatic fever imperfectly cured. All have seen frequent instances of pulmonary consumption, follow fevers more particularly affecting the lungs; as after measles, influenza, &c.

The numerous cases of adipose swellings, following canker rash, attended universally with quick pulse, are the effects of the stimulating plan of cure; or a neglect of any plan in mild cases. These are cases of protracted fever.

A peculiar state of chronic illness following spotted fever, may be mentioned here, and perhaps described under that habit of disease. This shows most distinctly a continuance of fever without inducing any other disease of a characteristic nature, as yet to be discovered.

It will be only observed further, that various transient indispositions appear, wherein there is a weakness, slight pains, rather frequent pulse, light furred tongue, impaired appetite, &c. whilst the patient attends to business; these have been called by some jaundice, by some gout, and by others debility. These indispositions are from a slight febrile commotion; they generally pass off without assistance, sometimes degenerate into troublesome chronic diseases; but at all times, may be cured by the proper remedies.

It may now be observed, that all the diseases, which are the consequence of fever, and which are believed to be numerous, are to be cured by the general remedies of fever. It is necessary that these remedies should be varied according to the locality of the disease—to the duration of it, and changes made in the system; to the

age and strength of the patient; and to the degree of excitement.

Stimulants, antispasmodics, tonics, astringents, and the like, have been repeatedly tried for the cure of chronic pyrexial diseases; but rarely with any success; whilst the evacuating deobstruent, and excitant plans, rarely fail, unless some organ is so far spoiled as to be irrecoverable—or the whole system greatly depraved.

An observation of some importance may be interposed here. The longer the derangement in capillary vessels has continued, the more difficult it is to be overcome. For example; those states of rheumatism, that have progressed into dropsy, and those states of influenza, that have progressed to ulceration of the membranes of the lungs, might perhaps have been removed by two or three bleedings in the beginning, with a few other appropriate remedies; but now in the condition mentioned, may perhaps require six or ten full bleedings to overcome them, with a proportion of auxiliary remedies; and also the first state might perhaps be removed in a week or two, whilst the last may require a month or two, or even more.

REMARKS ON MERCURY AND OPIUM.

It might appear sufficient for the present design to attempt to designate the remedies, that are useful in the cure of epidemic fevers, without adverting to those that are useless, or those that are hurtful, although much in fashion. This has been our design, and very tenaciously adhered to as yet. But there is one method of practice, which has become so general, and so obsequiously fol-

lowed, that it might be expected an opinion should here be given on the subject. The practice alluded to is the use of opium and calomel. But little more than an *opinion* will be offered, with a few remarks.

It will not be denied by the greatest advocates for their use, but that they are emphatically *stimulants*, and that the effect of salivation proves a stimulation of the salivary glands. Every one, that has noticed the appearance of salivation in persons not affected with fever, must have observed an increase of the pulse in frequency and hardness. The opinions of writers need not to be introduced to substantiate this. Perhaps there is no fact better established, and no subject in which physicians are better agreed, at the present day, than that opium should be set in the highest grade of the scale of stimulants; and we may add, when given in any considerable quantity, produces a state of the system much resembling that attending what is called malignant fever; being a state of exhausted excitement or indirect debility.

The position will be denied, that opium or even mercury stimulates the lymphatic more than the sanguiferous system; with this exception, that after stricture is removed by other measures, mercury acts in a particular manner upon the salivary glands. Opium increases heat in every part of the system; it stops perspiration, and is the most effectual of all remedies to check profuse sweats.

If these positions are true, the first question that presents is, whether these high and permanent stimuli can be admissible in those conditions of epidemic fever connected with primary derangements, which if the patient survives, are liable to be followed by high excitement,

suddenly verging to a state of exhaustion, or indirect debility? Patients may often survive a moderate disease, aggravated by improper treatment, but seldom a severe one. It is from a view of the aggregate, that just estimates can be made.

We have maintained, that at the very beginning of fever, a direct debility is present, but have remarked at the same time, that this should be met with the lightest and most transient stimuli, and such as may not remain to influence the system when emerged from this state to high excitement, which is soon to follow, and in danger of going into indirect debility. A discreet use of opium might here be useful, if it were not for the circumstance of its leaving a permanent excitement in the system for several days. But this effect is so blended with the symptoms of fever, that it is not generally discovered, nor is it generally admitted.

Neither can this article be considered in a much more favourable point of view, in the more moderate and continued fevers. The primary derangements are not removed by it, but the symptoms are aggravated;—and although the event is at a greater distance, it is very sure to appear in an unwelcome aspect. If a person, that is well, should take a full dose or two of this drug, he may mark the consequences. A fever may at any time be brought on in a healthy person by repeating the dose in a proper manner. And again, let a person, that has not taken any opium, and is lingering in a slow fever very stationary, take a few doses, and a change may be discovered very readily; he will have more fever, and an aggravation of symptoms, and it will take at least two or

three days for the effects to be eradicated. Because an agreeable sensation is experienced most commonly upon the first exhibition of this drug, the patient, and often the physician, is induced to repeat it. Let this be as it may, it is asserted, and the assertion is founded upon much observation, that, with a very few exceptions, it is the most improper remedy in the materia medica for the cure of fever. By it mild cases are made formidable, and more serious cases are frequently rendered incurable. To prevent being misunderstood, it may be observed, that in such conditions of fever of the lowest types, as require stimulants, opium may be sparingly employed; as in intermitting fever, &c. We have seen this however changed into a continued fever with violent delirium, by a very little opium, given before proper evacuations had been made.

In adverting to the use of calomel more particularly, it must be understood, that our observations are meant to apply to it when used as an alterant to affect the system; but when used as a cathartic, and combined with other purgatives, it is often useful.

It is believed that the use of mercury began in the East Indies, by salivation being found of service in chronic inflammation of the liver. Being useful in this, it was extended by its patrons to acute inflammations of the liver, and in fact, to all inflammations and fevers. Some flattering publications of its utility gained the attention of practitioners in the West Indies, in Europe, and in America. In a particular manner the attention of those was engaged, who were fond of subtile theories, and also of those who were fond of a mode of cure, which appeared

to supersede the necessity of thought. The mercurial mania has spread like a pestilential influence, and we should be happy if it could be said with much less malignity.

The theory of inducing a new action by the mercury for the pupose of destroying the morbid action of the fever, is one of those hypotheses, that look well enough on paper, but hardly reducible to practice. A patient will scarcely consent to have his foot scalded to relieve him from the distress of tooth-ache; if a blister or other irritants are applied to the nearest surface, their good effects are only transient. The theory is as absurd as to pile on a heavy burden upon an animal already staggering under a load too heavy for him to carry; or to give a man a dose of laudanum to remove intoxication caused by drinking spirit. The human system was never able to bear these strong impressions, and has often sunk under them. In the milder kinds of fever the stimulus of mercury may be better borne, but here reason and experience both instruct us, that instead of curing the disease "*quickly* and *safely*," it is protracted, and the event rendered more doubtful.

It is asserted, by the advocates, if salivation can be excited, the patient is safe. If true, this does not prove that the lymphatic glands are opened by the mercury. If so, why does it so often fail when liberally exhibited with sufficient time? All that is necessary seems to be to say the mercury cannot take effect, and therefore the case is incurable. The fact most generally is, that if the patient has ever so great a weight of mercury in his body, it cannot find its way through the lymphatic vessels, until the impermeability in the lymphatics is removed by the

common anti-febrile methods, or by the efforts of nature. In this instance the mercury appears in the mouth, as a mark of relaxation in the emunctories generally, which is a presage of returning health. The mercury does not produce this effect; if it did, why should it so often fail? It is presumed evidence will not be requested of its failure, if it should, enough is at hand. The fact needs to be supported by the advocates of this practice, that salivation renders the case safe. In various cases where the patient has been exercised with high salivation, the event has proved fatal!

In mild cases, where it has passed in the mind of the physician and patient, that it has saved the life of the latter, it usually requires a longer time to get rid of the protracted mercurial fever, than might have been necessary to cure the original fever without it.

One circumstance more will be mentioned; when the cure is entrusted to the specific operation of calomel, other measures are generally neglected, which are of real service, and the time cannot be purchased that has been lost in mercurial speculation.

Fevers are very apt to run into a chronic state, when treated with mercury, and are more difficult of cure in this state, than when such cases happen under any other management that we have even seen. Mercurial sores in the flesh, sore gums, intestinal discharges of blood, and mercurial hectic, which so often follow the practice, if the patient survives, begin to abate the zeal of its advocates, as it did ours seventeen years ago.

It was thought advisable to treat this subject with candour; if any one wishes to see it mixed with bur-

lesque, he is requested to peruse the tragi-comedy called the *Mercuriad*, printed at Lansingburg, 1807. *Adancourt.*

With these introductory remarks, leave will be taken of the subject of fevers in general. It is expected, that these will shorten what might have been necessary to repeat on the several species of fever. It is hoped the reader will give them a patient perusal, and think, before he judges. Although hastily and perhaps injudiciously arranged, it is believed, they contain principles which will stand the test of experience.

Our attention will now be turned to some of the different varieties or habitudes of epidemic fever, or elementary diseases. Some of these will be omitted, as not having come directly within the observation of the writer; those that are introduced will be handled with his customary freedom.

CHAPTER VI.

ON SPOTTED FEVER.

"In every blast the spotted plague be driven,
While angry meteors shoot across the heaven."

SECTION I.

History of the disease and symptoms.

HAVING little anxiety what name is attached to any particular habit of disease; provided the name does not influence the treatment, we shall not dispute about this; and shall be as willing to continue it as any other; and more so at this time, as every body knows what is meant by it.

At the time of its first appearance in this country, it was called a new disease, and has been so denominated in other countries, where it never appeared before, or has been absent for a long time. A disease, however, bearing this name, and which we have undoubted reason to believe very similar to ours, is recorded in various countries and periods.

In A. D. 1505, it is represented as overspreading Europe. In 1528, spotted fever again invaded Europe, followed by the plague.—And again in England and France in 1556.—And in Spain in 1557, as mortal as the plague. Spotted fever in many places in 1564. From 1569 to

1574, the spotted or petechial fever prevailed in Europe with much mortality, and followed by the plague. Spotted fever at Trent, in 1591;—and in 1592, at Florence. —In Europe, in 1624.—In Italy in 1691 and 1693.—In England, in 1698.—In Prussia, in 1704.—In England, in 1710, and 1741.—In Piemont, in 1720.—In Egypt, in 1760.—It appeared at Geneva, in Europe, in 1805.

A disease of this name has been discovered in some of the armies in Europe of late years; at first it was taken for the plague. The symptoms of the two diseases are very similar in many particulars. There is much reason to believe, that it has been considerably prevalent in Europe, in modern times, where it has sometimes obtained the name of purple fever.

Almost every practitioner in this country must have noticed eruptions on the skin, of various appearances in different fevers, which have a strong resemblance to some of the varied appearances which are noticed in what is more strictly called spotted fever. Sporadic cases have been considerably rife, and often the general term *eruptive* fever has been applied, or petechial, or miliary. The appearance of these eruptions is sometimes modified by the treatment.

The first notice of it in this country, which excited any alarm, was at Medfield, Massachusetts, in 1806. And again in Litchfield county, in Connecticut, in April, 1807. It continued in Connecticut in different towns in 1808 and 1809, &c. In the winter of 1809—10, it appeared at Worcester, in Massachusetts, and other towns in that state. About this time, and a little previous, it was noticed in different places in the state of New York, and also some in New Hampshire and Vermont

It did not appear in the state of Vermont to excite any considerable attention, until the winter of 1810—11. It may be observed, however, that for some time previous to this, sporadic cases of fever often appeared, with unusual symptoms and much versatility of character. About this time it was prevalent in a very considerable number of towns in New Hampshire, the district of Maine, New York, Pennsylvania, and Canada.

It continued in Vermont through the winter of 1810—11, until the first of June. A few cases through the summer; and in the winter of 1811—12, visited towns and neighbourhoods principally, that had been exempted the winter before. And since then has occasionally appeared in different places.

This peculiar habit of disease seems to be generally the offspring of cold climates, and cold seasons of the year. With a few exceptions, it has broken out in the coldest seasons, and spread most alarmingly at such times in the different places it has visited. The months of January and February have oftenest given rise to it in point of season. When it rages considerably, it continues perhaps to the middle of the month of May; and then passes off gradually like other epidemics.

Whatever may be considered the cause, we find the subject which is attacked, possessed of an unusual degree of nervous mobility, or oscillatory state of action. This condition is manifested to exist in the living moveable powers of the system, by the great variety discoverable in the mode of attack; in the variety of symptoms; in the uncertain duration of the disease; and in

the rapid changes, which take place from one kind and degree of action to another.

These circumstances obtain so effectually, that the disease can be said to possess a great versatility of character; and we are at a loss for a set of discriminating symptoms to distinguish it by, unless we resort to the method taken by some of considering its eccentricity of character as pathognomonic of the disease. This, however, is acknowledged to be too vague. It will be suggested in the shortest manner, that the disease may be distinguished more satisfactorily by a peculiar derangement in the physiognomy generally, than by any invariable internal diagnostic symptoms. To a person a little conversant with the disease, and taking all circumstances into consideration, there will be no great difficulty in naming the disease, if any one is anxious about it, especially in the epidemic season.

The most constant symptom, that has occurred to our observation, is a pain in the forehead between the eyes, similar to the pain that accompanies angina epidemica. A great part of patients, that have the use of their reason, will either complain of this, or answer that they have it, in a short time after the attack; or as soon as the fugitive nervous symptoms have a little subsided. This seems to be more depended upon in this place, than the soreness in the throat, which cannot by us be considered any thing more than a part of the eruptive process, which is in itself uncertain, and our patients seldom feel so much in the throat as to complain of it.

The first symptoms generally are extreme lassitude and desire for rest; at the same time a sense of faintness

at the stomach, with desire for food, which is often called for with impatience. A coldness to the touch is immediately discovered in the skin, and this last has sometimes a purplish colour; more commonly, however, the skin, at the attack, looks clear.

In the less severe cases, there is often more or less cold chills; they are rather slight, and seldom spoken of as producing much distress. In severe cases, however, these are considerably distressing; and in the most severe and dangerous cases, they are not felt by the patient; as the reaction never obtains from this state of depression. For a simile of the more suddenly fatal cases, the reader is requested to see Chap. IV. Sect. 2.

The access of the disease is at other times very sudden. Without any previous notice, the system is thrown into great distress and pain in some part or other; it is sometimes in the head, and frequently followed by coma, or delirium; or it may be in the back, side, temples, or some of the limbs. It frequently commences in the fingers, and spreads like an electric aura to the head, followed by great pain, with numbness, &c. The pain is often shifting from place to place. Sometimes it seizes the thorax, at other times the abdomen; sometimes lancinating and transitory, sometimes obtuse and permanent. In the head, when extending largely, it is attended with a throbbing or beating. One side of the body sometimes suffers more than the other; at other times, the pain is very small at the beginning of the disease, and such cases as become of a serious character after a little time, show nothing very alarming at the onset.

Some few are attacked with delirium, and run out of the house into the fields, and can only be restrained by superior force. Very commonly the sick would be incapable of describing their feelings from an imbecility of intellect or aberration of mind, and expire in a comatose state. At other times, the pain and anxiety would be such as the patient could not describe, and the distress would be manifested by moaning and weeping aloud.

Sometimes, when the force of disease falls severely within the head, it is attended with more or less defect of sight and hearing; a distortion of the eye produces double vision in some instances. The deafness sometimes remains after recovery; it denotes a severe disease.

Convulsions or spasms sometimes usher in the disease. That form of tetanus, called opisthotonos, comes on sometimes towards the close of severe cases; it denotes an alarming case, but is not a fatal symptom.

The countenance is generally placid, unless distorted by pain, with often a flush upon the cheeks; as the disease advances, however, after a day or two, in such cases as prove fatal, the countenance becomes fallen, the features changed, and, in some instances, where they have been treated without evacuations and with high stimuli, it exhibits a bloated appearance, of a dark sublivid hue, with deep brown patches, and reddened eyes.

The heat on the surface of the body is as variable as the other symptoms. The surface inclines to be cold, particularly in the beginning of the disease; and also in the approach of paroxysms; notwithstanding a very high heat is sometimes observable, especially in the act of sweating. The eyes are generally dull and heavy,

inclining to shed tears without being conscious of it. The pupils incline to be large; these will sometimes contract and dilate alternately without, or with a very little change of light. A sublivid colour in the under eye-lids.

The tongue is commonly moist; after some continuance of the disease, there may be some drought and desire for cold drink; but little however is desired. The tongue is covered with a thin white coat. Sometimes a brown list appears in the middle; this soon vanishes, and it assumes a red colour. The taste is generally correct; and refreshing food is often desired.

The lungs are pressed with blood, but seldom any cough. Respiration is often laborious, and the patient inclines to be quick of speech.

The heart, for a little time from the first sensation of lassitude and faintness, beats more slow and feeble. It is wont to remain feeble; but in most of the severe cases it quickens with much rapidity, so that within an hour or two of the attack sometimes, from 120 to 160 pulsations may be distinguished in a minute; this rapidity does not generally obtain, until four or eight hours from the attack. In fatal cases the pulse increases in frequency, and continues to increase until nothing but a faint, tremulous, retiring motion is felt. Directly nothing is felt at the wrist; when at the same time, pulsation may be felt under the head of the humerus. I have never known the pulse return with any advantage after retiring in this manner, with great frequency.

The region of the heart is sometimes the principal seat of the disease, and not so violent in the head. When this is the case, there will be an inexpressible anxiety

and inquietude from erythematic inflammation and pressure in this part. This is offered for a solution of many of the phenomena in this disease, which otherwise, would be unintelligible.

The pulse is the index to show the variation of nervous energy in this disease, and it does it with considerable exactness. As the state of the system is vibrating, so the force and frequency of the pulse are very mutable. Notwithstanding the action of the heart is unstable, and pulse generally feeble, fluctuating, and compressible at the commencement; yet unless my judgment has repeatedly deceived me, the action of the heart is often strong; and the pulse considerably hard, full, quick and elastic. Some have said, that the pulse is deceptive in showing more strength, than the system possesses; my observations confirm me in the opinion, that there is more *latent* strength in the system, than is indicated by the pulse. On this conclusion is founded the proposed method of cure; which will be considered in its place.

The stomach is sometimes affected in a distressing manner, attended with pain and vomiting. This last, in some instances, is almost incessant, approaching to the condition of cholera morbus; or rather that sort of belching great quantities of fluid, which sometimes affects dying people, especially such as have inflammation of the abdominal viscera. Although not a great proportion of cases are attended with vomiting, in those in whom it does happen, all the degrees of violence have been noticed from the mildest to the most severe, in different subjects.

The materials ejected by vomiting, have not appeared under our observation, and in the first stages of the

disease, to be essentially different from what usually takes place in a person free from disease. First, the contents of the stomach; then a white viscid material more or less tinged with bile. We have never been apprized of this last, being accessory to the disease, any more than the pancreatic juice, nor of its being materially affected in the after progress of it. We have witnessed two cases where vomiting brought up a material very exactly resembling that described by writers called black vomit. These cases did not prove fatal. A like appearance we have noticed in vomiting in other violent diseases, in years past, some of which were fatal cases, and others not. From these reflections we are led to believe, this is not a fatal symptom. It is hoped the explanation of this symptom in Chap. IV. Sect. 2. will be satisfactory.

Except the stomach, and some solitary cases of attack of the bowels, the abdominal viscera are but little affected. The intestines are as little affected in this disease, as the head is in dysentery.

The urine is but little changed, unless the disease is protracted considerably. Sometimes in the beginning there is a flow of pale urine. Strangury often attends this disease, after a few days from the attack; but it is rather doubted at present, whether it is not oftener from the use of blistering, so generally employed, than from any thing necessarily connected with the disease. Or does the erythematic inflammation sometimes affect these membranes?

A very frequent concomitant symptom is an extreme soreness and tenderness in the muscles generally, and

which supervenes most commonly after the extreme lassitude. In some cases, however, this soreness in the flesh comes on sooner.

The joints are sometimes affected with swelling and extreme soreness, resembling rheumatism, but not attended with so much swelling. Sores in the cellular membrane have but rarely appeared, and when they have, were not large.

Sweating could generally be brought on by external applications and very simple means internally. The sweats were attended with a peculiar smell; rather sickening, emitting a mawkish sweet halitus, somewhat cadaverous. They were not on the whole very offensive.

The eruption, which has given name to this disease, is not a constant attendant, and has as great mutability in its appearance, as can be attached to the pathological character of the disease. The proportion of cases, which had distinct eruptions, may be estimated at about one sixth. Notwithstanding a considerable part of the remainder had some kind or other of cutaneous affection, greater or less, denoting them to be of the same family; but this gives no discriminating character to the disease, as many cases occurred, in which not the least vestige of eruption could be traced.

The second winter it prevailed here the eruptions were not so frequent. The actual appearance of the eruption gives no relief. But its appearance along with other signs of excitement on the surface, may be considered as favourable.

The eruptions appeared at different periods of the disease; perhaps most commonly on the second day. They

sometimes resemble petechiæ, or flea bites, as described by writers, happening in other diseases, of a dark hue; sometimes of a brighter red colour. They are very numerous; of the size of a pin's head, or less. The red colour is most favourable. When numerous and of a darkened colour, along with a dusky appearance in the skin, they exhibit a very forbidding aspect.

The eruption sometimes appears in blotches and patches of a red colour, and undefined in size, having a resemblance to divided portions of slight erysipelas. Oftentimes a less deep and more diffused erythematic appearance, and even a slight redness without any sort of elevation of surface. This appearance would occur very frequently on such parts, as were rubbed by the bed clothes, as the outside of the elbows, &c.

Sometimes the eruption resembled the measles, at other times it was like small vesicles; and in a few instances there were very large vesications and few in number. In a few instances, these blisters contained an ichorous matter.

These eruptions were of uncertain duration; slight and partial ones soon vanished. The true petechial were the most durable; and in some fatal cases, which I had an opportunity of seeing, they continued for four or five days, and even until about the fatal period; but they were not at all times equally conspicuous. In one case that had been abandoned as fatal, where the petechiæ were very numerous and dark coloured, of several days standing, they were turned to a bright red with tenderness in the skin, by the warm bath with common salt dissolved in it; also by frictions and tonics, &c. The

patient showed signs of hope to all around her;—pulse less frequent; but the system was so depraved by the continuance of previous diseased action, that she died at the end of four days from the commencement of these measures.

It cannot be required to notice all the anomalous symptoms, attending this disease; they might fill a volume.

It assailed all characters and ages. The aged were the most exempt. The middle aged more liable to it. And children the most of all. This disparity was reversed in the pulmonic epidemic, that followed the spotted fever, and in some places accompanied it. Very young children, however, were commonly exempt from either.

The duration of the disease accorded with its irregular character. The most violent cases would sometimes end in twenty-four hours in ease and convalescence; which induced some people to think, that the physician had magnified the importance of the disease; and caused them to doubt, whether they actually had the true disease. Others would terminate in a low state of fever of considerable continuance. Again, the mildest cases perhaps, would be the longest, and the most likely to end in chronic illness. The common period of termination, was somewhere between the fourth and seventh day.

It was very common for relapses to recur, or for the disease to be repeated, after the patient had returned to his ordinary employment. In my third number on this disease, published in the public print, whilst the disease prevailed in this place, the first season, I find that the statement was, that in the last fortnight in March, whilst

thirty-two new cases fell exclusively to my charge, there were also ten relapses in the same time, of those who had been well and about their usual employments. Perhaps the proportion was not much different at other periods of the season.

SECTION II.

Prognosis.

With regard to the prognosis, it may be observed, that dark coloured petechiæ, deep coma, and a very quick pulse, either separate or as combined in the same case, denote a very dangerous disease. There is likewise a peculiar state of this disease, which sometimes obtains a stationary condition, not very alarming after the first impression has passed off, and in which the force of the disease is not sufficiently broken. In this condition there is a state not much unlike what Senac has described of the hidden nature of intermittents; in which the disease is liable to assume a violent paroxysm and prove suddenly fatal.

In no disease perhaps in the annals of medicine, have there been more recoveries from the most forlorn and hopeless condition, than in this. The extinction of life in some sudden cases bears a strong resemblance to syncope; or to those spasmodic affections called hysteria. In the first stages of the disease, it is all a nervous debility, spasm, and retroversion of action; making allowance, however, for the injury that particular organs may receive in this sudden conflict, such as the brain and heart. These considerations should induce us to persevere and hope until the end.

SECTION III.

Appearances after death, and on dissection.

It may be necessary to take a short review of the morbid phenomena discoverable after death in the victims of this disease. The motion of the blood in capillary vessels after death, makes some changes in the external appearance. When spots appear on the face before death, or a darkened discoloration; if the body is placed with the face uppermost, these discolorations diminish or disappear; as also the redness in the eyes, whilst the most depending parts, such as the back, neck, sides, and thighs, become dark coloured; sometimes a deep sublivid colour in large patches of irregular and uncertain dimensions; the same is noticed in the back part of the lungs. With this resemblance to a state of mortification, there is no offensive scent, any more than in a person killed with lightning; nor is there any evidence of a weakened texture of the fibres of the skin or muscles.

Soon after the disease appeared in this neighbourhood in the winter of 1811, I called one morning to see the body of a woman, who died of this disease after about fourteen hours' sickness, and who had been treated with emetics and stimulants. It was about two hours after death; her face, breast, limbs, and, I believe, the whole of her body, was variegated like the adder, with deep purple spots divided or bounded irregularly by the more natural appearance of the skin. It is believed something like this is frequent; indeed several other cases of

this kind have come under my observation. But this appearance, or a considerable degree of it, is frequently discovered in the attack of the disease, and the patients recovered afterwards, and oftentimes very suddenly.

The muscles every where exhibit a full shade deeper colour than natural. The blood vessels in the brain, more especially the veins, are very turgid. The small vessels are injected with red blood, which in a state of health are destitute of it. The membranes of the brain exhibit different degrees of inflammation according to the term of sickness and degree of local affection in the brain. Signs of inflammation are discoverable in almost the whole of the brain; the dura mater adheres more strongly than natural to the cranium; also the brain beneath often adheres to its meninges. An increase of serous fluid is often discovered between the membranes, and the ventricles are more or less filled with the same, as in hydrocephalus. The anterior and inferior parts of the brain exhibit the greatest marks of violence, and every where a remarkable pressure in the veins.

The thorax exhibits very similar traits of membranous inflammation. The heart is most commonly the seat of its greatest violence, when the seat is in the thorax; the small blood vessels seem beautifully injected. There is often on this organ and its appendages strong marks of inflammation. The outer coat is frequently covered with extravasated lymph of different degrees of consistence or firmness. This extravasation of serous fluid is sometimes found in the cavity of the thorax. The blood, stagnating by numerous congestions in the capillaries, gives a dark colour to the muscles and membranes throughout the body.

As the thorax is not so generally affected as the head, so the abdomen is not so often the principal seat of disease as the thorax. Notwithstanding the stomach and some of the organs most contiguous, suffer severely in some cases. When these organs are affected, they exhibit the same distension of blood vessels and traits of membranous inflammation, noticed in other cavities.

It is noticed by all, who have communicated cases of dissection of bodies dying of this disease, that nothing has appeared in the course of dissection to induce a suspicion, that any thing like putrefaction had taken place. The dissections have usually been made within twenty-four hours.

The following case occurred the 9th of April, 1811. The principal symptoms, as here noted, were given by the physician who attended, in presence of the family. The subject was a child 16 months old. It was taken with drowsiness, and slept from 4 to 6 o'clock yesterday afternoon, and when awaked, was still inclined to sleep; vomited six times in all; sublivid appearance around the eyes; countenance pale, but florid upon vomiting; small spasms and trembling in the muscles. The pulse from 6 o'clock was observed to be very quick, and considerably full, and continued so until about 12 o'clock, when it began to fail, and about 4 in the morning was extinguished; at 6 the child expired, about 14 hours from the attack. A very few scattering spots had been noticed. The physician *estimated* the pulsations to be about two hundred in a minute.

Dissection began about ten hours after death. On the neck, back, and thighs, a general diffused, dark sublivid

colour. The cranium was separated with some difficulty from the dura mater. Through all the membranes of the brain, a general turgescence of the larger veins, with a darkened colour; and also the smaller vessels exhibited a full injection. It was manifest that many of the vessels injected did not receive red blood in a state of health. About an ounce of water was discovered in the ventricles of the brain.

In the thorax, the pleura, and all its duplicatures, that covered the organs, particularly the heart, and also in the peritoneal covering of the stomach, liver, and of the other organs in the superior part of the abdomen, were affected with the same sort of erythematic inflammation. The resemblance was something similar to a minute injection; so fine and delicate that the eye could not trace them all, giving generally, the appearance of redness, or rather "an ill-looking purple colour."

What was more curious, and attracted our attention in places less affected than the above, was the appearance of a vast number of spots dispersed in different directions at a medium about the size of a common pin's head, of a red starry appearance. These spots were found on the external and internal coats of the stomach, some of the superior parts of the intestines, and in other parts, as the diaphragm, and the organs in the thorax, where the other described changes were not so extensive and abundant as to obscure the whole of the natural appearance. They had a resemblance to the red petechiæ of the skin, only more distinctly stellated. The spots were more distinctly discovered upon the inner coats of the stomach. The appearance of these spots was not much unlike those

which I have discovered formerly in dissection in the internal coats of the large intestines in dysentery, after the bloody mucus was carefully scraped off. The stomach contained no ill conditioned matter, and but a little of a similar viscid, mixed matter, which is common in subjects free from gastric affection. One small worm was found in the stomach, and two in the intestines.

I was indebted for the following cases of dissection, to the politeness of Dr. Bowen of Reading, after having written the preceding. They are very important in two particulars; the first is, as they tend to show, that actual inflammation exists in the head even to the suppurative process; the second is, that as four of them happened in the latter part of the winter of 1813, at the very time when a great number in the same town were affected with epidemic peripneumony, they seem to prove the affinity of the two diseases, and that the variation of symptoms arose from the difference of locality.

"Case 1. Miss B. S. aged sixteen, was attacked with the usual symptoms of spotted fever in April, 1813. After the cold chills were removed, she complained of much pain in the head, for a few hours, when she fell into a stupor which continued two days, with great heat in the head; extremities cold and warm by turns. On the third day she had her reason, appeared to be better, but complained much of her head; from this time she *apparently* was on the recovery for three weeks, during which time, however, she constantly complained of pain in the back part of her head, frequently darting down her neck and back; there was a constant heat in the part affected; the back part of the head sweat much of the time. Af-

ter four weeks she was evidently declining; her memory and other intellectual powers, which had been weak ever since the first, were now approaching to idiotism; soon after this she became comatose. A tetanic contraction of the muscles, &c. On the sixth week from the first attack she died.

"Dissection extended no further than the head. On removing the scalp, the colour of the pericranium and bones was changed, and assumed that which usually appears after blows, when there is injury underneath from previous inflammation. On removing the bone, it was found, that the adhesion between the cranium and dura mater was almost entirely destroyed. In some places for an inch or two, they were perfectly separated, whilst in others they were only partially so.

"There were but a few of those small red points to be seen, which usually appear so numerous on the inside of the removed bone, from ruptured blood vessels. The bone was dry, as was also the dura mater next the bone. The blood vessels of the brain were turgid.

"The ventricles of the brain were crowded with water, and the cerebrum had the appearance of previous inflammation. On attempting to remove the second process of the dura mater, well digested pus gushed out; on examination, an abscess containing half a gill of pure pus was discovered. It was situated in the substance of the left side of the cerebellum, and extended down to the basis of the cranium to the great foramen.

"The above was treated first with an emetic, then with stimulants, tonics, epispastics, &c. No calomel given

until within three or four days of her death, when it had no perceptible operation either on the glands or otherwise."

"CASE II. A child of Mr. M. P. aged two years, was taken ill of spotted fever, in March, 1812, symptoms much as case 1st, in the first stage. After five weeks the muscular contraction, which before had been occasional, became fixed: viz. the thumbs were thrust between the fore and middle fingers, the fingers drawn towards the ball of the thumb; the hand towards the ulna or back part of the wrist. The toes towards the bottom of the feet, and these drawn backward. At the same time the head and sacrum were fast approaching each other. These contractions were all fixed, so that it was impossible to straighten one of them.

"The child now lost its hearing and sight, with dilated pupils; the fever now assumed the hectic form, with some cough; the cold and hot stages very severe; flesh fast wasting; and at the end of three months it died, horribly distorted and greatly emaciated.

"*Dissection.* The lungs rather darker coloured than the healthy, with some frothy mucus, but not ulcerated, and sufficiently inflated; the heart, stomach, liver, bowels, spleen, &c. all natural. The cranium, dura mater, &c. similar to case first. The ventricles full of water, and so far as I could discover, from the soft substance of the brain, they were burst from pressure. The water extended down the medulla spinalis, where it had formed a sac on the two first vertebra of the neck. The water yellowish, similar to that discharged from a blister.

"Treatment. An emetic on the first day; on the third a large dose of senna and sulphate of soda; after the operation of which, it came to its senses;—otherwise with diaphoretics and stimulants."

"Case III. Died at the end of sixteen weeks; appearances similar to case second, except the water extending so far as the spine."

"Case IV. Similar, &c. at ten weeks."

"Case V. Similar to case first. The collection of pus near the centre of the cerebellum; died at the end of seven weeks."

"Case. VI. Died in twelve hours after the attack; aged twelve years. The lungs dark and *spotted*. The cranium and dura mater adhered firmly; the membranes suffused or congested with blood, as was the whole substance of the brain. Indeed the contents of the cranium appeared as different from the healthy, as an inflamed eye does from one not inflamed: a little water in the ventricles, not much more probably than in health.

November 18th, 1814."

The last case is also important in proving the existence of spots in the membranes of the viscera in the first stage of the disease. It is considered parallel to the case of my own dissection above; and establishes the existence of an important phenomenon.

SECTION IV.

Pathological Reflections.

The bold and gigantic features of this disease are calculated to arrest the attention of physicians; to develop

the principles of medical philosophy; and to call forth the highest energies of the human mind to divert the force of the disease from its intended victim. Whilst it has swept, like a torrent, many from existence in the northern states of America, it has also carried with it to be ingulphed, in the whirlpool of oblivion, some of the visionary and crippled theories of the old schools of medicine. Century has passed after century, whilst a part of physicians have been satisfied with the "tales of other times," and in looking with horror for a communicative contagion in epidemic diseases, have shown less zeal for humanity, than for that of personal preservation. And also, the writings of the dark ages of the world have been appealed to in the collection of opinions to serve as precedents, and almost every symptom of epidemic diseases warped into proofs of a humeral pathology, and the existence of a fermenting principle in the blood, inducing putrefaction.

At the time that the physicians of America were engaged in the support of a mode of reasoning and inductions very different, in several respects, from many of those of the eastern countries, the disease under consideration, by its prominency of character, appears to decide the controversy. All the symptoms and circumstances of the disease warrant the conclusion, that the primary fault is in the nervous and moving powers of the system; and also that the remedies ought to be directed to the regulation of morbid excitement, and the restoration of healthy action; expecting the fluids will harmonize accordingly.

If any fever can with propriety be called nervous it ought to be this. For the motions of the system, in the

more distinctly marked cases, are rapid and transitory almost beyond example; or if the disease does not end fatally sooner than some other diseases are known to do, yet it is attended with manifest signs of nervous affection, more distinctly marked perhaps, than in any other form of epidemic disease.

Besides the symptoms previously noticed, the greatest evidence of spasmodic, or emphatically nervous state of the system, is discovered in the mobility and irregularity of the motion of the heart. It is prone to be irregular; sometimes excessive, sometimes deficient. The heart acts spasmodically whilst there is stricture or cramp in the capillaries, and signs of spasm in other parts.

It will of course appear, that if a qualifying word must be added to this disease, the word, *nervous* would be more appropriate, than that of malignant. If this last is used to express merely an aggravated, or high state of febrile commotion, there would be little objection to its use; but if it is used as synonymous with putrid or pestilential, or to express any particular quality of disease, its use is very objectionable. Possibly the word, *ataxic* may be more technical and more agreeable than nervous, to express the incoherency of action in this disease.

As we see injuries done to the external parts of the body by wounds, bruises, burns, &c. attended with great diversity of symptoms according to the degree of lesion, the part affected, and the personal susceptibility of the subject, so impressions of unequal force upon the surface and different internal organs, variously affecting the sensorial power, exhibit a vast diversity of symp-

toms and appearances in different states of fever. Notwithstanding, all these diversified appearances may be resolved into one principle or law of the animal economy, called irritability, or a capability of responding to the force of irritants; and excitement or action more or less inordinate follows.

Agreeable to our theory previously advanced, it will appear, that the predisponent influences have a particular effect upon certain internal membranes, rendering them exquisitely liable to congestion and inflammation. The membranes of the brain are particularly prone to inflammation in this disease; also the heart frequently and other organs in the thorax, &c. as before stated.

This membranous affection is termed inflammation; but it must be understood as very different from phlegmonic inflammation; the part is scarcely thickened. It is not strictly erysipelatous. It seems to be intermediate between what is called erysipelas and erythema. The diseased affection appears to follow considerably the course of the blood vessels. It has a resemblance in many respects to the cutaneous eruption in the same disease, both as it appears in spots and in diffused inflammation, with distension of blood vessels internally. It may more properly be considered an inflammation *sui generis*.

The particular condition of this internal inflammation is varied, and modified by circumstances; it is often different in different habits; sometimes more phlogistic, affording a dense fibrinous exudation upon the surface of the organs; at another time, a more dilute effusion of an ichorous appearance; and sometimes more approach-

ing to a sort of purulent state. In recent cases, or those which terminate fatally in a short time, no gelatinous exudation may be discovered; nothing but mere inflammation, with an aqueous effusion in the ventricles of the brain.

The cutaneous eruption seems to be a sort of sympathetic echo, or reverberatory reflection of the internal affection, liable to be diverted by accidental circumstances.

Internal membranous inflammation is not peculiar to this disease; it is believed to occur very constantly in some internal part, in all elementary fevers of any considerable importance. In the milder and more protracted states of fever, it is not so readily distinguished, but is always present in a greater or less degree. It is of different varieties in different epidemics; sometimes more strictly phlegmonic and circumscribed.

From a very susceptible condition of the parts, induced by the predisponent causes, congestion and internal inflammation proceed very rapidly in the high state of nervous susceptibility and febrile action accompanying this disease. The circumstance of this internal affection merits a particular regard in the pathology of the disease, and also as respects the treatment. The more fixed the stricture in the capillaries of the surface is, the more are the internal membranes liable to suffer by congestion and inflammation. The sooner and more effectual the derangement in the surface and capillaries can be removed, the sooner and more complete will be the dissipation of the internal congestion. Hence it is that we see cases of epidemic fever suddenly cured by a re-

moval of the primary derangement; provided, this can be effected before reaction has become violent, and induced secondary consequences. And again, we see fever continued very frequently after the cutaneous derangement seems to be restored. Fever, in this instance, seems to be supported principally by the internal membranous inflammation.

SECTION V.

On the treatment, or methodus medendi.

After what has been suggested in this, and the three former chapters, the method of treatment will be comprised in miscellaneous facts and observations.

Although we may have a primary object in view, yet it must be acknowledged, that in a disease attended with a versatility of appearance as the one under consideration, no one particular method of treatment can always be pursued. Perhaps this may be said of all fevers; and if so, it may emphatically be observed in this. Notwithstanding, the cardinal objects should be kept in view, like the pointing of the mariner's needle; and the unstable and vacillating symptoms regarded as pressing currents and tumultuous gales, which merit attention for the time present, but must not be permitted to divert the course from the desired haven.

Like the spreading of other diseases of considerable fatality, public solicitude had preceded this, in this part of the country. The natural queries were, what has been done for its cure; and what are the best remedies? The only answers were, opium, brandy, ardent spirits,

wine, sweating, and the whole round of the alexipharmic regimen. These were published as the best remedies, in various newspapers; and at the same time cautions against any evacuations, especially bleeding. This view of the subject had become very generally received by the public, and by physicians, who had not seen the disease. It was considered as a very extraordinary disease, not subject to the usual control of remedies; but medicine of Herculean strength must be administered. All was mystery.

The name of the disease was sometimes more dangerous than the disease itself; for as soon as it was called spotted fever, every thing, like the above, was put in requisition; and the principal care seemed to be to get down enough stimuli. Soon after the disease appeared here, I was called several miles distant to advise in a case of a middle-aged athletic man, taken with the disease about nine o'clock in the morning. I arrived at about five in the afternoon; he was senseless and expiring, with a full strong pulse, which beat between one and two minutes after every other appearance of death. The physician, a reputable man, had been with him from about twelve o'clock. Upon asking how much opium had been taken? it was answered, several doses; and how much spirit? it was said considerable, as much as could be got down.

The above is only put as a specimen; the same sentiment generally prevailed, and it was thought almost malpractice to neglect the above measures in their fullest extent, or to practise bleeding, or even other evacuations, without the greatest caution.

Having a preconception of the possibility of public opinion being liable to errour in matters recent and abstruse; the determination had been formed in my own mind to investigate the character of the disease, upon physiological principles, as far as I was capable, without regard to names or received opinions. Accordingly, the first cases were watched and scrutinized with care and solicitude. The opinion then formed remains satisfactory to the writer at the present time, and even more so, having stood the test of experience.

The principles, as connected with this opinion, have, in part, been detailed in the previous chapters, and in part, are to follow in this. It is particularly requested, in this place, that the generous reader will keep in mind, that the principles of medicine are aimed at, and nothing is intended to be levelled at the reputation of individuals. Man is on a level with his fellows in *one* respect, at least; which is, that he is liable to err. Benevolence reacheth forth the mantle of charity to cover the foibles of an honest brother. And where is he that needs it not? It is our lot to differ in sentiment from some of the gentlemen who have written on this disease, and whose remarks have come to hand since the appearance of it in this place; but little will be attempted in refuting them. We would rather give due honour to the merit attached to them, and consider them as very useful to the community. It is possible, that the first cases in some places, at the beginning of the epidemic season, discover more distinctly the spasmodic or nervous symptoms, than perhaps the after cases do. But this we are sufficiently established in, from a personal knowledge of diseases in

all the New England states, more or less, together with the varieties of practice, that the *stimulating method of treatment* is too much adhered to in general, not only in epidemics, but in other pyrexial chronic diseases.

In speaking of stimulants it is to be understood, those of the higher kind internally exhibited. We mean to advocate the use of external stimulants in all cases connected with low action; the principal of which is heat. And this will be first considered in this disease.

Perhaps no single remedy is better agreed on among physicians as being generally useful, in this disease, than sweating; or, in other words, the application of external heat. If it is not always useful, it is in some solitary cases, where there is an abundant heat from reaction having taken place in vigorous habits. At the onset of the disease, however, this remedy may be said to be always useful.

From what was suggested in Chap. III. Sect. 5. and Chap. IV. Sect. 3. relative to the weaker energy of the surface compared with the incarcerated viscera, it will appear how important it is to restore warmth and vigor to the surface. We have been so thoroughly impressed with this important fact, that for a number of years it has been our constant practice to use diligently the warm bath, steams, &c. in the various epidemics that have infested this portion of the country, such as typhus fever, dysentery, peripneumony, all the variety of colics, &c.

Where there is a deficiency of heat, there is a deficiency of excitement; and a deficiency of these induces temporary debility. In all these cases, restoring heat restores vigor. It is of the first importance, therefore,

that warmth be applied in the great prostration of strength connected with this disease. It is of indispensable use in the nervous stricture on the surface in recalling life and energy back to the skin, and in establishing the action of perspiratory organs. External warmth is of vast importance in keeping up the centrifugal action of the system. If the action is allowed to recede to the centre, by neglect of external warmth, after sweating has been used with advantage, the patient is apt to be exercised with sinking, distress, &c. and will be in danger, if heat is not immediately applied. It is very curious and pleasing to see how suddenly and effectually relief will be obtained in many cases without the aid of internal stimuli.

Heat is the safest and most congenial stimulus, that can be used for the cure of all diseases, connected with external deficiency of action; and these comprise three-fourths of the whole nomenclature of diseases. By deficiency of action is meant, such diseases as commence with great torpor. It is true, that after the system is roused into vehement responding action, much heat will be present, in many states of disease; in such cases there will be no need of applying heat; but even here the tepid bath is often agreeable and useful.

A consideration of still higher importance, if possible, is, that by diverting action and pressure from the internal inflamed membranes, these are relieved of their burden in a great degree; and if the disease is not violent, may be cured by this remedy. If it is a violent case, it relieves in part, and assists the cure. Other considerations of its utility will be passed over for the present.

The application of heat and sweating have their limits, like all other remedies. No remedy is useful only to a certain extent; that is, when the object is obtained for which it is used. The first object is to restore warmth and action; the next is to support them. Warmth may be used freely until the first is obtained, after this it must be conducted with much discretion; only sufficient to keep action upon an equality as much as possible. Several cases have been noticed in the disease under consideration, where too great a degree of heat and sweating threatened the existence of the patient. In these cases, as Dr. Woodward observes, "cool air, a cool room, and cool bed, are very refreshing."

The manner of applying heat must be guided oftentimes by circumstances. A preference is given to the warm bath;* but this is often inconvenient, and would often require too much time in the preparation. Blankets, dipt in warm water, and applied over the whole body, is a substitute, and, in some respects, has the preference on account of being continued for any length of time. After the patient is enclosed in one bed-blanket, a second may occasionally be dipped again and kept warm. Steams may be used sometimes to advantage. Billets of wood taken from boiling water. As soon as the sweat flows, it may be sufficient to apply dry blankets and a few dry substances made warm. When action is considerably established on the surface, a sufficiency of bed-covering will continue it.

As a means of promoting warmth and vigor upon the surface and system in general, internal stimulants may

* See note in Chap. v. Sect. 1. concerning Jenning's apparatus.

be had recourse to. But here it will be observed, we have to differ in many respects from respectable brethren of the faculty. Instead of the higher and more powerful stimulus of opium, brandy, &c. without measure; we recommend, with a few exceptions, hot infusions of aromatic herbs, seeds and roots; occasionally agreeable essences and warm water; a little wine made moderately warm, or a little spirit with hot water and sugar. Also seneca, ginger, cayenne, &c. The most agreeable stimuli should be sought for, and such as are of a diffusible and transient nature, as described in Chap. v. Sect. 1.

It is very much doubted, whether stimulants of the highest kind and greatest quantity, will restore vigour upon the surface, in the prostrate state of this disease, before they are liable to induce, by their irritating influence, irreparable injury in the internal organs. They are rendered more safe when accompanied with external warmth. When aided properly by this, the more mild stimulants are commonly sufficient. To prevent being misunderstood, it will be asserted as an opinion, founded upon observation, in seeing the trial of high stimulants in certain cases, that the chance of success is much greater, by the use of mild stimulants and external warmth, than by large doses of high stimulants with or without external heat.

An almost certain fatality has attended the use of large quantities of high stimuli in severe cases, in this quarter; and it is believed the features of the disease have been very similar to those of the disease in other places, where high stimulants have been supposed very

beneficial. In cases reported to be cured by high stimulants, it is suggested, that more benefit has been gained by external warmth accompanying their use, than by the stimuli. High stimulation is rendered much safer when connected with external heat, than otherwise; their force is more likely to be dispersed to the extreme parts of the body, and diverted from the internal organs.

When stimulants internally are used in the case of low fever, if they are not so managed as to excite action on the surface, they are apt to quicken the pulse, increase pain and exhaust the vital principle. But if managed so as to have this desirable effect, may be useful in moderate doses. Therefore, if a patient gets stimuli in this condition, he ought to receive along with them a permanent use of external warmth, conducted in such a manner as he is able to bear; rather in an agreeable manner; and he may receive benefit from them, unless the degree of internal stimulation be greater than is compatible with his personal condition.

A familiar instance may be noticed, relating to the use of stimulants, whilst torpor prevails on the surface, in confirmation of the positions just now advanced. Let a person in health be exposed to severe cold for a considerable length of time, and perhaps with labour; give such an one his customary dram of spirit, and let him continue in the cold, he will feel an unusual effect from the spirit; he will even appear intoxicated; and many have been lost in passing their way alone afterwards. In this case the internal stimuli cannot diffuse action upon the surface and capillaries; its force is spent in the internal parts, and coma is produced, &c. In like

manner, the internal stimuli, disconnected with the external stimulus of heat, are pernicious; and it would gladden our heart, if we could say, they were always harmless under the most favourable circumstances.

It is a well known fact, that people in health bear the operation of high stimuli, such as opium and ardent spirits, much better in a heated room, or heated bed with perspiration, than when exposed to the common temperature. They are not so readily intoxicated in this condition; but this does not prove but that they may be hurt by them, even under these circumstances. As there is a great degree of torpor, or temporary depression in the system generally in the attack of this disease; and as in the cases reported of great stimuli being used without intoxication; and as it is believed, that external heat and sweating have been practised at the same time; may we not infer that intoxication has been prevented, in part, by this circumstance? Considering the great quantity of medicaments required sometimes to move the system under certain circumstances, the use of large stimuli might be more justifiable, if their hurtful tendencies could be averted. However this may be, it is believed that this fact remains, that all cases, at all times, have not terminated so favourably, as some that have been reported.

All epidemic fevers require more or less external and internal warmth, in the first hours of the attack; but as this is a disease showing great disparity of action in different stages, so in the first stage, the prostration of action often demands a pretty liberal use of the means necessary to bring back an equality of excitement. It

may here be observed, that it is of great consequence to be assiduous in promoting equality of excitement; not only as it respects different parts of the system; but also as it respects the diseased action generally compared with the healthy state.

These measures will prove more beneficial, if we can keep our judgment from too great a preponderance to any particular preconceived plan, to be followed in all circumstances indiscriminately; and as soon as heat and action are eliminated to the torpid veins and lymphatics, we suppress excessive energy by venesection, and other sedative measures.

To conclude this part of our subject relating to the use of stimuli in fever, a short extract will be taken from Dr. Wilson, which seems to be the same, as I had formed from observation more than fifteen years before the book came to hand. It will apply in the present case. "The feeble state of the circulation and the temporary good effects of powerful stimuli, have led most physicians, and particularly those of later times, to employ them with great freedom. Many, however, confess, they have been disappointed in their effects; of this number I can feel no hesitation in declaring myself to be one. *I have found the second stage of fever most tractable, when all powerful stimuli were avoided.*" Vol. II. p. 585.

If our views of the disease are correct, it will appear that the internal vessels are prone to congestions, especially in the head, and the heart is oppressed with a repercussion of humours, &c. Under these circumstances, the important question of the propriety of blood-letting is brought up. The use of this remedy has been strongly opposed, and but little advocated. Although

our confidence of its utility, under certain circumstances, is unshaken; yet from the weight of opinion against it, the subject will be approached with diffidence. After the general observations already made, but little argument will be advanced, but reliance placed chiefly upon facts.

In recent cases, before that state of the system occurs, called by some the sinking state, there is almost always a struggle in the heart and arteries to overcome the oppressing powers. The heart acts with some force at this time, although it cannot be great; it needs relief. In severe cases the time is short, and should be well improved. If external warmth is applied, the patient in a recumbent posture, and attended with much pain, or lethargy, he may be benefited by bleeding; and under these circumstances may probably be prevented from going into an irretrievable condition. By this the pain is mitigated, the pulse enlarges, and sweat flows more readily.

A case will now be stated. To show the reality of the disease, it will be first stated, that two lay dead in the house. One a young woman not my patient. The other a little boy about five years old, to whom I was called early the morning before. He was in great distress; sinking, and almost ready to expire. As emetics were extolled by some, in this situation, I was induced to give him, though reluctantly, a small dose of ipecacuanha, which I have ever since regretted. As he vomited he took a dose of laudanum. He died in about an hour and a half after I saw him, and in about three from waking in the morning. This was but a few days after the sickness began in this place, and about the first of February, 1811.

The next morning another boy about eight years of age was taken, in very similar circumstances, at the same hour of waking. As the family expected nothing but sudden death, I felt at liberty to treat the case with freedom. The warm bath was ordered. Whilst this was preparing, observing his pulse to be very rapid and small, giving the sensation of a little sharpness; believing it must soon fail as did the other, I resolved to give vent to the blood without waiting a moment for the bath, wishing at the same time that this might be first used. He had extreme pain in his forehead, a crimson flush in his cheeks, a sublivid colour under his eyes, flaccid veins, dry skin, with constant writhing, whilst held upon the knees of another person. About five ounces of blood were taken from his arm. He said immediately his head was easier, he sat more quietly. No signs of sinking attended this operation, as the strength of the heart was not yet prostrated.

He was now immediately immersed in warm water; he expressed its being agreeable to him, although he had no cold chills. After remaining about ten minutes in the bath, he was laid into a warm bed, with billets of wood placed around him from boiling water. These were afterwards changed for dry substances. A free sweat was soon induced, and his pulse became more full and free with less frequency. In about five hours I was sent for in haste to see him, when I found the nurse had pressed the sweating too freely, and he was much oppressed with heat. The bed covering was loosened, cool air admitted into the room, when he was soon relieved. Notwithstanding he was manifestly changed from the state of immediate depression, his case was

considered desperate by all who saw him; but hope, gleaming from a distance, inspired me with confidence. I now resolved to spend more time with him; and the principal part of the following night was spent in attending to every symptom, particularly the pulse. He took but little medicine except light cordials, such as essence of peppermint, spirits of lavender, &c. with coffee, tea, &c. as he seemed to need them; with sage and balm infusions, &c. His pulse grew more free and less frequent after the sweats had continued twelve hours; the sweats had been kept free but not large, with little more than common covering, ever since his being relieved by loosening the clothes.

At about break of day, the time he was attacked the morning before, I perceived his pulse began to fail; but they were not so frequent by about thirty strokes in a minute as they were the first morning. He lay perfectly at ease; was now rational, but had showed signs of slight delirium at various times before. His pulse faltered gradually, whilst occasionally sleeping, and answering correctly when questioned. The most perfect composure rested on his countenance after the pulse ceased to beat at the wrist; occasionally in an easy sleep, and waking with calmness. The pulsations were so effectually ceased, that they could not be felt at the armpit; and respiration hardly discernable; yet he would wake easy and swallow small liquids; in other respects, he resembled a corpse.

My determination was to trust his reviviscence to the more moderate stimuli, and the returning energy of the heart; avoiding opium and the more extravagant quantities of stimuli. With this view he took brandy with

loaf-sugar, oil of cinnamon, &c. He continued in this state about an hour and a half; when the pulses returned to the wrist;—they were feeble and slower than before. He was now treated with wine, brandy, bark, allspice, &c. but not in very great quantites, yet enough to have a very evident effect along with the expanding energy of the system, to restore him back to a state of high arterial action at the end of thirty-six hours from the faltering, when they were all discontinued. At the end of twenty-four hours more, being the beginning of the fourth day of his sickness, he was exercised with universal soreness in his joints and muscles, so that he would scream when touched, attended with a redness of the skin, and as high a state of febrile action as I ever witnessed. His pulse was full, hard, and quick; he was bled now about ten ounces, and the next day about as much more, and treated in all respects upon the antiphlogistic plan. These measures gave manifest relief; the blood was covered with inflammatory buff.

The disease had now assumed a fixed character; the latent energies of the system were drawn forth into action of a permanent kind, and he had no further signs of sinking. The fever gradually but slowly subsided, but not until after a considerable length of time, when it ended in perfect health.

My determination was not to give this patient any opium; and hitherto he had not taken any, nor until about three weeks of his disease. Whilst he was lingering under a moderate fever, the father of the boy had a wish for him to take some. I put him off for a short time, but others insisting also for its use, I consented,

after telling him my opinion, and the probable consequences. I insisted that he should take the phial of laudanum into his own hands and be particular, which he did. He took about twenty drops every twenty-four hours, in divided portions, which gave no stupifying effect; but at the end of three days made a sensible change in his disease for the worse. His pulse was very considerably increased, his tongue dry, was restless, and a very constant tremor, or subsultus tendinum, not only in his limbs, but in the muscles of his body. The father readily gave up the phial of laudanum; and it was four days from this before he got back to what he was when he began its use. This circumstance is rather irrelevant to the subject for which this case was introduced, but it was thought best to connect the whole of the case together, which might save a repetition in another place; more particularly to demonstrate the effect of opium in typhus fever. The boy had none of these tremors before nor after what is mentioned.

In this long case I am not suspicious of having misjudged but in one circumstance, and that is altogether problematical. At the end of the first twenty-four hours, it might be supposed if he had timely been supplied with cordials, he might not have fallen into the sinking state. Whether great stimulation would have saved him from this in part, or whether it would have forced the powers of the system beyond what it was capable of bearing, and ended in indirect debility, are very interesting questions; and they are also difficult to be determined. For myself, I am satisfied to have this as it was. But it may be observed that oftentimes those great depressions, which supervene after the first attack, seem in

part, to be prevented by a pretty liberal use of agreeable stimuli. We will now resume the subject of blood-letting.

It will not be maintained that blood-letting is always necessary or even safe. It will only be insisted on, that it is often necessary, and sometimes indispensable. The opinion I had early formed with respect to this, and published in my third number on this disease in April 1811, is confirmed by subsequent experience. "As it has fallen to my lot to speak in favour of blood-letting, and against opium, some might begin to think, that my whole intention might be to trust the cure to evacuations and debilitating remedies. But when reference is had to the indication laid down in the first number, this will be set right; viz. to support and equalize action, when low, or depress and equalize action when high. Some cases I have met, where the most assiduous use has been made, from the beginning, of brandy, bark, wine, essences, and essential oils, cayenne, camphor, ether, &c. internally to support; and to equalize action externally, warm bathing, blistering, frictions, with red pepper and rum, moderate and long continued sweating, &c. By *equalizing*, it may be understood to divert the morbid action from the internal parts and important organs, oppressed and agitated with pressure of blood and membranous inflammation, to the surface and extremities of the body. If excitement is kept up on the surface of the body, morbid action will spend itself partly there, and save the more noble internal parts from destruction. It is presumable that the pressure of the blood and peculiar inflammation of the membranes of the brain diminish the nervous energy, and may be a cause of weakening the heart and the

rest of the system; so taking some blood oftentimes actually gives strength to the action of the heart and system generally." In the first number, published March 18, it is there stated that bleeding has been practised more or less in about half the number of patients. And in the second number, published the 8th of April, the statement is, that "for the last fortnight I had bled about two-thirds of my patients; and not in a single instance had any reason to regret it."

One case, a little after this time, gave me some temporary uneasiness. A girl in the west part of Hartland, about nine years old, of a delicate constitution, had been sick three days. I was called to visit her in the absence of her physician. Her case was judged to be very serious. It was my wish to let blood; the family consented, as they said she could not live without relief. It being towards evening and not a good light, the orifice was made rather large, and in bleeding rather freely, more was taken than was intended. It was, perhaps, ten or twelve ounces. She directly fainted; and continued in an alarming state for two hours, in which time the most powerful stimuli were used, and seemingly in vain, when I was obliged to leave her with only a forlorn hope of her recovery. I was, however, agreeably surprised, in going into that neighbourhood two days after, to see her almost well. Indeed nothing was needed to be done, as she had no disease upon her. She recovered in a short time after I left her from the state of depression, and immediately appeared free from disease. I do not justify so large bleedings under the circumstances of this patient. This was the only case that gave me any reason to think, that I had taken too much blood; and even this proved very fortunate.

The case of a young man, aged twenty, taken on the 16th of March, 1811. Severe attack in the night. Bled the first night, although the pulse was very small and quick, and the patient evidently in danger of going suddenly into a state of indirect debility. This patient was afflicted with an obstinate diarrhœa after the third day; also severe strangury and tetanus. He was bled four times in all, and every time gave some relief. The epistothotonos came on about the fourth day; he continued the greater part of three days with his head and hips drawn back very greatly. A sparing use of opium internally, and a liberal use externally, was tried, but rather aggravated his case. Free bathing the whole body with olive oil and spirits of turpentine; this, like every thing else, seemed to make no favourable impression upon the spasm; he had been sweated freely, &c. A physician was called in for consultation; I had previously proposed the fourth bleeding; he said that it made no difference what was done for him; it could do no good. I was left to my own election, and bled him more freely than before. The result of the case was a rapid recovery; and I find by my minutes, that on the ninth day he was convalescent.

Whilst visiting a family in Hartland, a man was brought into the house, who was seen to fall suddenly from his horse, upon the snow, in a cold day, and senseless; he was brought about a quarter of a mile in this situation, and laid before the fire. His pulse was scarcely perceptible, with crimson flush in the middle of his cheeks; wholly insensible. He was immediately warmed, and got into a sweat with a few simple internal stimuli, with a little spirit. The next day when I went to see

him, he had an eruption of the fine brown petechiæ with fever and pain. He was now bled, and the usual course pursued, a cathartic, sweating, &c. and in four days he was convalescent.

Cases might be multiplied to show the utility of blood-letting; and also to show that the stimulant plan indiscriminately adopted, was not to be relied on. Selections of this kind might be offensive, nor am I at liberty to give them; they will therefore be dispensed with. An injudicious use of blood-letting, as to time and circumstances, is as bad as not to bleed at all, perhaps worse. It might here be observed, that no person ought to attempt to treat this disease, unless he is pretty well acquainted with the physiology of the human system in health and in disease. The diseased action is so various in different cases, and mutable in its character, that dogmas and nostrums can but accidentally meet its eccentricities.

Two states of the system will now be adverted to, showing the varieties of diseased action, and the propriety of using different remedies. The first is a state of lowness in the whole system from the beginning, attended with faintness and sighing; a weak, comparatively slow, compressible, trembling, and retiring pulse. Perhaps puking may attend, perhaps not. This may be the condition at the attack; it may recur at after stages of the disease. In this case stimulants are indicated, and they are useful; but not without measure, or in such a manner, as to force the action beyond what the excitability of the system can bear. Perhaps twenty or thirty drops of laudanum may be given, and the rest trusted to cayenne, wine, bark, cinnamon, allspice, essences, brandy, &c. Let these last be given every ten or fifteen

minutes, as the case may be; not more than is sufficient, after a reasonable time, say an hour or two, to excite energy and raise the pulse, along with external means. The particular quantities must be regulated by the particular symptoms, under the direction of the physician who is observing the state of action the whole time. As soon as energy is in part restored, these measures should in part be laid aside; perhaps wholly; for quickness of pulse or high action is wont to succeed to very low action, and in this case as much injury may follow as could be apprehended from the reverse state; unless counteracted in season. These cases are not so frequent. When they do happen, perhaps they may better be trusted to other stimuli than to opium. I never had so good success as I had the first six weeks of the disease in 1811; when observing the bad effects of opium, in certain cases not in my control, I had determined to see if the disease could not be managed without it. The result was then given the public in my first number. "I will take all ages and sexes into my account, and state that of eighty-one decided cases, committed wholly to my care, and treated as above and without opium, one case only, (the first case of the boy mentioned above) proved fatal. In this the patient was not bled. The cases, in which I was called to visit the patients of other physicians, are not taken into the account; nor the relapses of the same patients, which have been frequent, but not fatal." It will be noticed, that in the case of the boy alluded to, he took a small dose of laudanum, just as he was expiring, not expecting any good or harm from it; and not thinking it worth mentioning. I believe not one of the other patients took a dose of opium, during this time. It

was mentioned, however, in a subsequent number, that one of the above cases, a boy about ten, from doing apparently well, died after the statement was published.

The other state of the system is, where the signs of great depression at the first onset are not very manifest. More acute pain attends than in the other; an inclination to sleep; some spasms; flush in the cheeks by turns; some accumulation of heat. The pulse is soon after the attack rather full and a little elastic; but soon grows smaller and quick almost beyond example. If the disease is not arrested, the pulse becomes tremulous, and evanescent, and in a few hours excitability is extinguished. I have never known high stimulants avail any thing in these cases to restore the sinking state of the pulse. It may here be observed, that when the disease first appeared in this place, it was principally confined to the village; and I seldom had more patients at any one time, than I could attend as was necessary, with much labour. After the first two months the greatest number of patients were at a much greater distance, and the travelling very bad. These circumstances lessened the number of visits, and brought me in contact with a number of late cases, both at a distance and near home, in which the most precious time, to afford relief, had already passed; in these cases the pulse was inconceivably quick, and the powers of the heart and arteries retiring before the load of oppression. As a dernier resort, opium, brandy, &c. were effectually tried in some cases, but without any benefit, that I could discover. After cases like these have progressed to a certain degree, even some time before the pulse has retired, I do not pretend to know of any remedy that is very likely to save the

patient; but in all these cases, if the fortunate moment is well improved, whilst the pulse has some fulness, and before it has increased to the greatest frequency, by bleeding, warm bathing, stimulating frictions, blistering, &c. there may be a great prospect of saving the oppression of the vital organs and restoring the patient in due time. These cases have occurred so frequently in a very formidable manner, and have been so uniformly relieved by the principal remedies just named, and others of minor importance, that I feel disposed to speak with much confidence in their use in preference to the indiscriminate use of high stimulants. When we consider, that these cases terminate in six, twelve, or twenty-four hours in death, and not unfrequently before medical aid can be procured, the importance of early and strict attention will be manifest. Not only this, the honest physician needs often to offer the sacrifice of a broken heart for want of judgment to apply correct principles in the most critical and perplexing moments. Amongst several that fell to my lot under peculiar embarrassments, being exercised with the above described state of the disease, and in a too advanced period for relief, will only be mentioned the endearing young Miss ———

> "Crop'd like a rose before 'tis fully blown,
> Or half its worth disclosed."

After a fatiguing walk she was attacked at nine in the evening. A neighbouring friendly woman attempted to sweat her in the usual manner, and applied too much heat and spirit. I first saw her at the end of seven hours. Pulse 160, great heat, and no sweat had been procured; partly delirious, partly comotose. Signs of

extensive internal inflammation; died at the end of twenty-six hours; bled but once.

The more candid and intelligent part of the Faculty in this section of the country, adopted the practice of blood-letting at different periods of the epidemic; so that it was pretty generally practised; in a very partial manner, however, by some. If a patient was bled once, that required it perhaps three times, and the case went wrong; the fatality was often imputed to his having been bled.

A reputable physician at a distance, with whom I conversed on this subject, at the beginning of the epidemic, and who was wholly devoted to the stimulant plan, informed me in the month of May following, that he had practised bleeding much to his satisfaction, and that he bled in this disease, in his opinion, more largely than I did.

Some analogy really seems to exist between this disease and some conditions of intermitting fever. Bleeding has generally been condemned in this. But a late celebrated writer, Senac, says, "It may be laid down therefore as an established principle, that if venesection does not absolutely cure intermittents, it paves the way for other remedies, and is on that account highly necessary."

It should be particularly kept in mind, that when bleeding is practised in the low oppressed state of fever, attended with a weak, quick, and unstable pulse, the patient should be agreeably warm, and in a recumbent position; and these circumstances being attended to, we have not met with the bad consequences apprehended by some. When practised in this manner, the operation seems to have a better effect in diffusing action upon the surface, and removing coldness and constriction.

Arteriotomy in the temples, and opening the external jugular veins have been practised; but we are not confident, that they possess any advantage superior to taking blood from the arm or hand.

If it should be suggested by some, that this being a disease of spasm and of the nervous order, that therefore stimulants are particularly indicated; it would be observed in answer to this, that stimulants are not advisable in those cases of spasm, connected with fever and inflammation. Instances of this sort are familiar in hysteria, and in the common convulsions of children. Nothing is more common than for some to employ opium in these two conditions of disease emphatically called nervous, and nothing is more common than for them to be disappointed in the good expected from it. It is believed that nine tenths of the convulsions of children are connected with pain and fever, which is so much of the sthenic character, as to prohibit the use of opium in correct practice. The warm bath, venesection, and a cathartic will commonly change the intolerable distortion of the little sufferer into enlivening smiles; whilst opium as commonly increases the direful disease, or changes it into a fatal hemiplegia. In hysteria, opium is very objectionable, though not so fatal. In many other cases of clonic spasm, opium is not only useless, but hurtful.

It is time to pass to other curative means for this disease. Emetics have been used sometimes successfully, and sometimes the reverse. The indiscriminate use of emetics is generally disapproved, and very justly. From the great irritability of the stomach, emetics are apt to go to excess; and where the stricture of the surface

and extremeties of the body cannot be overcome by the exercise of puking, the strength of the system is weakened, spasm of the stomach induced, and the patient left worse. But on the contrary, if the torpor on the surface is not considerable, and the vital energy not greatly lessened, the exercise of emetics may overcome it, assisted by external warmth, and benefit the patient. But after all, their good effects are doubtful, and they hardly ought to be trusted at the onset of the disease. Their use may be dispensed with on account of evacuating bilious matter, as this is seldom to be found in the beginning of the disease.

In mild cases, they are useful at the attack; and in other cases more severe they may be employed as in other fevers, after the disease has progressed into a regular and fixed character.

Very nearly the same observations may be made upon the use of catharties, that have been made upon emetics. It is best to wait in severe cases of lowness with slow pulse, and note the energy of the system before catharties are used. The pain they occasion, is often very debilitating; but the evacuation they produce, and the translation of excitement from the head they effect, is often very useful in relieving the congestions in that part. They ought, therefore, to be used, as soon as the circumstances of the case will admit; and enemas used in the mean time. The common aloetic pills answer pretty early to be given; it is our practice to combine calomel with these most commonly; and often times to manage them so that they shall have a full operation by the second or third day. In the greatest number of cases, they ought to be used the first day.

Blistering ought to follow as soon as the patient has had warmth applied in the first instance. It is of great efficacy in promoting excitement on the surface; the absorption of a safe stimulus from the flies is supposed useful, as also the mechanical irritation upon the skin helps to increase sensibility in lethargic cases. They may be applied to any part of the body; but in the attack of the disease they are judged to be of most efficacy on the limbs and trunk of the body, in making a revulsion from the head. Afterwards, if the case partakes more of inflammation, with warmth in the extremities, they may be applied to the neck or head. If strangury comes on, they should be discontinued, and demulcent drinks given internally, and embrocations of anodyne balsam to the hypogastric region frequently repeated; also cloths dipped in warm milk and water; also semicupium.

Whilst the indiscriminate use of large doses of opium and other stimulants is discountenanced, it will be acknowledged, that in certain conditions a judicious use of them may be useful. In the cholera morbus state of the disease opium becomes very necessary; and it should be given in conjunction with brandy, and other agreeable stimuli, until puking is mitigated. At the same time using external warmth and venesection, if the pulse will admit of it.

In this last state cayenne pepper, or even the common red pepper of the garden, has been used to advantage internally and externally; these are good in all states of lowness. These have appeared safer than much opium or alcohol in exciting warmth in the system. If relief is not soon obtained by these measures, it will often be proper to avoid giving any thing to the patient, even

mild liquids, until vomiting subsides. Our views of the use of cold water internally and as applied to the head, may be learnt in Chap. v. Sect. 2.

In the colic state of the disease, moderate doses of opium are useful, with the usual external remedies, and they are here safer, than in attacks more confined to the head. Cathartics should not be early given; but after blistering and warm fomentation to the abdomen, mild enemas should be first used. This state of disease is not very frequent, but is sometimes very distressing. It often requires the use of bleeding after the first day.

Frictions are useful to the surface; they are more efficacious when used with red pepper and spirit made hot. A coarse woollen glove may be used for this purpose.

For the purpose of exciting the cutaneous capillaries, the seneca root is very beneficial. It may be given in powder or infusion. As much should be taken as the patient's stomach will bear without producing sickness. If puking is required, this may be used for that purpose, mixed with ipecacuanha.

For a tonic, Fowler's solution of arsenic has best answered our purpose. It may be given from three to six drops every four hours; or as the case may be; perhaps more freely in some cases; but not so as to disturb the bowels. We have seldom depended on this in the first attack; it seems to be more useful after depraved action is corrected in part, in order to give stability and regularity. Perhaps disagreeable consequences might arise from a long continued use of this remedy; it cannot be needed but a few days in this disease. Notwithstanding what has been suggested above, in very low cases attended with slow tremulous pulses, it may be given upon the

first attack, and along with other tonics and stimulants; and if the strength of the system emerges, may be followed by bleeding.

As the appetite in this disease is less impaired than in almost any acute disease, it is an indication that nature requires the use of food, and this is conformable to experience, as it seems to be beneficial. The patient may use such articles as are most agreeable in small quantities, and often repeated. Animal broths appear most proper. For the treatment of this disease after it has assumed a fixed character of the continued kind, see Chap. x.

SECTION VI.

Sequel of Spotted Fever.

A PECULIAR state of chronic illness, as the sequel of spotted fever, was hinted at in Chap. v. Sect. 3. The subject not having been treated of by any writer to my knowledge, it may require some further consideration in this place. As this chapter is extended already further than was contemplated, brevity will be studied.

The subjects of this disease have been young men, or young women, with a few exceptions; most commonly the latter. They have most frequently been such as had the epidemic rather lightly, or not in the severest manner. Several that I have seen, in the relation of their illness mentioned, that in the epidemic season, perhaps several months past, they were somewhat unwell for a few days; did not send for a physician, got better, remained unwell, and gradually grew worse; but did not think they had the disease. Others remained more in a

stationary state from the attack, and very gradually grew worse. From a strict analogy in the appearances, it has been uniformly my opinion, that these slighter affections were a miniature of the same epidemic.

The condition of those who are affected with this chronic illness, after more serious attacks, was, that they were never free from the disease, yet relieved in part. Some continued so unwell as to be confined, others were able to attend partially to business; but a very little exercise, and a small deviation from accustomed habits, was sure to make them worse. Persons so affected are averse to exercise; feel great lassitude upon muscular motion, and incline to keep in the bed. Indeed some were so reduced, that it was difficult for them to sit in a chair for months together; whilst others would be able to attend to business half the time, and the other half of the time be confined. If they got some better by common treatment, it was only a deceitful respite, and the patient had shortly to submit again to confinement. In this manner months and years have been passed by some, whilst others have had a more speedy recovery.

The pulse has commonly been from 80 to 120 in a minute, small, and rather hard. The appetite for the most part good, digestion well performed; and the alvine excretions regular. Nothing remarkable in the other excretions. All were affected with pain somewhere. The pain was often in the head, frequently in the side, often in the stomach. When in this part, food gave much distress, although taken with a good relish. The pain was often shifting, and occasionally it was in the limbs. Hands and feet inclining constantly to be cold and damp. The countenance retained very much its natural appear-

ance; and oftentimes it would be difficult, from a slight inspection, to discover from the physiognomy, that the person was much out of health; if we except a slight bloating and transparency which are sometimes present. The tongue is very constantly covered with a thin white coat, and moist. Much solicitude and anxiety of mind attended, and they would often utter desponding moans. In short, nothing but a chronic fever can be discovered, with strong marks of parental likeness.

It is peculiar to this affection to maintain its character, and perpetuate its continuance. I have never known it induce any other disease in the system, even when it had continued for years; unless it was in one of the most obstinate cases that I ever saw, attended with pain in the head, hemicrania, with tetanus, &c. ending in a state of deafness and idiotism, connected as is supposed with hydrocephalus. This case is of more than three years' continuance; it had its origin from a very mild attack of the fever; the patient attended to business several months after, and was but little indisposed. After an evening's exposure, he grew worse. Although the sufferings of this patient have been beyond description, he commonly retained his appetite and plumpness of body.*

I have never known it prove fatal either in its own character, or by inducing any other disease. At the same time, it is one of the most obstinate of all the curable diseases, and not very often removed by the salutary operations or adaptations of the system. Notwithstanding a very great proportion got well after some months under a severe regimen; whilst many others, under a tempo-

* After writing the above, in December, 1814, I saw this patient, and his health was somewhat better.

rising treatment, are sick for years. I was lately applied to by a man who had the spotted fever in 1811, three years past; who has been indisposed ever since, and tried all methods but the right one; sometimes able to attend a little to business, at other times confined, at all times attended with pain in some part of the thorax, hypochondria, or head, with cold extremities. He had a tolerably good appetite, and was inclined to obesity; he entertained for himself suspicion of dropsy; a small, quick, and oppressed pulse. In the course of two months he was bled four full bleedings; took repeated doses of emetics about every third day, and in the intervals, repeated doses of drastic physic; using the warm bath, every evening or every other evening, followed by sweating. In the above mentioned time he appears free from disease, and with as much strength as he had before beginning the above operations. It may be observed, that for the last fortnight of the two months, he practised but little of the above operations; but he was not materially weakened at any time. He appeared to be rapidly gaining his strength. Three months after writing the above, he remains well and able to labour.

What the particular state of the system is, which keeps up this indisposition, will be difficult for me to say, unless it be that the primary derangement is not yet removed. It is conceived to be in the finer orders of vessels, and most secret recesses of the system. But what order of absorbent vessels should be so long and so permanently affected, without inducing more derangement in the rest of the system, may be difficult to be explained; perhaps the torpor only partially affects some particular order. It is highly probable, that the internal membranous inflammation is always present more or less.

I have seen a variety of methods of cure experimented; but only one method has appeared to me to give any permanent benefit. This is the same, as near as personal circumstances will permit, with that mentioned above for the cure of the original disease of spotted fever. It seems that in all fevers just so much must be done, either by nature or by the assistance of art, before the subject is restored to health; and this seems to be whatever is sufficient to remove the primary derangement, or more commonly speaking, the primary cause. This last may be so circumstanced, along with the personal peculiarities of the subject, that if they are not suddenly removed, the system must be destroyed. Again, they may be less extensive or in part mitigated, and in a subject possessing personalities opposed to sudden destruction, may continue an indefinite length of time. It can hardly be supposed, but that these cases must end in incurable disease after a length of time; and perhaps in some instances have already.

Although there is a great degree of debility in the organs of loco-motion, a small pulse, and a deficient circulation in the extreme vessels, the subjects of this disease bear bleeding, puking, purging, and moderate sweating to a great degree, without growing weaker or showing many signs of increased debility. Not only this, but it is a fact capable of demonstration, that where these remedies are used freely, the patient grows stronger as soon as the fatigue and immediate depression is over, which is only a short time. The circulation becomes more perfect, as is proved by the warmth in the hands, feet, &c. The pain is mitigated, and by perseverance in the use of these means, health is gradually restored. In some cases of long standing, the system

must be as it were revolutionized by the operation and agitation of severe measures. Tincture of digitalis seemed sometimes useful.

It may be difficult to say what proportion of cases terminated in this chronic illness; the most correct opinion I can form on the subject is, that about one in ten or twelve of all that were affected, ended in this state of disease; this is supposed to include the slighter cases of attack. They most frequently get relief in the course of a few months by proper treatment. I do not recollect a single instance of this chronic illness succeeding those cases, where the evacuant and excitant method of cure was properly persisted in.

CHAPTER VII.

EPIDEMIC PERIPNEUMONY.

"Why licensed pain,
That cruel spoiler, that embosom'd foe,
Imbitter'd all our bliss?"

SECTION I.

Preliminary Observations.

This disease has been called by some *pneumonia typhoides*. It might as well be called by this as any other name, were it not for the idea of its having an affinity to typhus fever, not only in its name, but in its treatment. This has actually been the case; and although the more noble and vital organs are assailed with inflammation of the most destructive kind, yet many have been deterred from using the most suitable means of relief, from an apprehension, that it would not do to practise those remedies forbidden by some to be used in that disease, to which this word implies it to be allied.

Winter pneumonia, or epidemic pleurisy, is a pretty common disease. It may be found recorded in many of the histories of epidemic diseases. It frequently follows the pestilential diseases of the summer season, in all countries north of the tropical line. It often follows the

plague. In countries visited by epidemical diseases for several years in succession, this pulmonic affection will, occasionally, break out in places or districts, not immediately infested with the most general epidemic. In this case, as it respects geographical situation, it may precede the reigning epidemic, in certain places. Instances of this were met with in the winter of 1809—10; when spotted fever prevailed in many places in the New England states, this pneumonic affection prevailed in some places. The spotted fever prevailed most generally in the winter of 1810—11, but it was not until the winter of 1812—13, that the pneumonic fever became general and distressing. Something like this happened in the winter of 1794—5; when pneumonia prevailed in connection with canker-rash. Although in this immediate vicinity, this last disease was most severe in the winter of 1795—6, yet it had been in the country two years before. These circumstances tend to show the affinity of epidemic diseases, and their mutability of character from a change of the local affection; and also prove the folly of a supposed specific contagion. The influenza commonly precedes severe pestilential diseases, and pneumonia generally follows them.

There was a great similarity between the pneumonia of the winter of 1794—5, and the present disease; with this difference, that it had rather a more steady character, and inclined a little more to the sthenic diathesis at the onset of the disease; which proves the hurtful impressions to be less severe. The controversy was great at that time respecting the treatment, and many appeared to perish for want of a bold and energetic use of the same remedies, that promise the most benefit in the present instance.

All epidemic diseases, that invade the system rapidly, or that have a sudden access, from strong predispor liability to affections of the more noble organs, show great disparity of action, especially in the first attack. The symptoms of fever, or of high excitement, are not in proportion to the degree of danger; but are more nervous and mutable. The symptoms of strong arterial action, called sthenic, are not very manifest at the onset. This is supposed to arise from a severe impression of disease and a peculiar affection of the organs, supplied from the sympathetic nerves. A state of depression seems to be present, and a strong tendency to fall into sudden exhaustion and death, before the latent energies of the system are drawn forth into action. This state of the system has been called malignant as before observed. And as the phenomena and treatment have been discanted on previously, they will now be passed in silence. It will only be observed, that if the locality falls on the muscles of the thorax and on the pleura, or on the ligaments of joints, we have a case of common sthenic, or inflammatory fever from the beginning.

The disease of 1811 and 1812, called petechial fever, and the present epidemic, seem to have many things in common. This is inferred from the suddenness of the attack in both; from their rapid progress; from the sudden prostration of the vital principle; from nearly the same appearances of internal membranous inflammation on dissection; from their mutability of character as shown by external appearances; from a close connexion in the epidemic period; and from a deceptive exhibition in showing a greater degree of debility, than

actually exists in the system, when its energies are emancipated from the temporary oppressing powers.

They show also an affinity in this, that in 1810, '11, and '12, some cases of pneumonia appeared, and in some few places, this predominated. In 1813, some cases of petechial fever appeared. One further analogy will be hazarded, and without a desire to gainsay; that on general principles they required the same treatment. This difference, however, will be noted, that the present disease offers a greater number of cases than the other, where the depleting plan of cure should be carried to its fullest extent.

The chief difference seems to consist in the locality of the principal affection. In the disease of 1810, '11, and '12, it was in the head; in 1813, it was in the thorax. And these circumstances go far in explaining the phenomena of the two diseases. Neither of the diseases was strictly confined to one of these parts or the other. When most in the head, the diseased affection could be slightly traced in the thorax; and when in the thorax, some could be traced in the membranes of the head.

All that has been advanced in the previous chapters, relative to the oppressed state of the system at the attack of severe epidemic fevers with internal inflammation, whereby a deceptive debility is liable to impose upon the judgment of the observer, may apply in the present epidemic. The most alarming attacks, are often not attended with a chilly fit, but with coma; a depressed, low, intermitting pulse; at length small and quick. Coldness of the surface, &c. which denote that state of disease called malignant, and marks the highest grade of danger, and requires the most prompt and energetic

measures, to change this state of disease into one less dangerous and more manageable.

SECTION II.

Dissections, &c.

I HAD no opportunity of making dissections myself. Dr. Perkins of Bridgwater and myself agreed to improve the first opportunities; in a very short time, we were both attacked with the disease. It proved *fatal to him.* Some circumstances, relating to my own case, will appear in the sequel. From previous dissection in former cases of pneumonia, I felt satisfied of the condition of the local affection, and made a report of my opinion, the beginning of June, as will presently appear. It was with much satisfaction, that I found ample testimony of what I had advanced, in the dissections of Dr. John C. Warren, published in July following, in that valuable work the New England Journal of Medicine and Surgery.

Dr. Huntington has lately communicated the following summary of appearances in two cases of dissection. In a middle aged man, the heart was in a high state of inflammation; the pericardium and lungs in a gangrenous state. Liver inflamed. The other a woman. Nearly the same appearances, only the lungs exhibited signs of high inflammation instead of gangrene. No mention was made of symptoms, or the duration of the disease; but the pulmonic epidemic of the winter 1812—13.

The following anomalous and strongly marked case, was obligingly sent me by Dr. Tracy, of Hartford.

About the middle of the epidemic season, T. D. a middle aged, athletic man, was attacked with symptoms of fever, attended with pain and swelling in the throat, particularly of the thyroid gland, and with symptoms of croup; and also with difficult and obstructed deglutition. On the second day, severe symptoms of pneumonic inflammation more distinctly appeared; the pulse which was quick, weak, and irregular at first, was now strong. The pain and inflammation were severe; and the patient expired on the fifth day with apparent suffocation. The above symptoms were related to our correspondent at the time of dissection.

On examination, ten hours after death, the swelling of the throat and thyroid gland externally, and collection of dense coagulable lymph in the trachea, so effectually obstructed the passage, that the lungs could not collapse until punctured. The pleura, mediastinum, diaphragm, lungs, pericardium and heart, showed strong marks of inflammation. Adhesions were formed in different parts.

There was an appearance somewhat like vesicles, over all the inflamed parts, filled with purulent matter. In addition to this, there were about two pounds of purulent, mixed matter, in the cavity of the thorax. The exudation in the trachea extended from the larynx about six inches, and of the consistence of cheese-curd. This patient had one small bleeding.

The subject of blood-letting in this disease is very important. It seems to be, as it were, the dividing line between the two kinds of practice pursued by different physicians. As its utility appeared to my understanding very conspicuous, I felt a freedom to advocate its use. I wish here to express my satisfaction at seeing, in the

publication above alluded to, reports of cases demonstrating the efficacy of this remedy in the present disease by Doctors Gamage and Jackson. See Med. Jour. Vol. II. for July. The testimony of Dr. Gamage is so consonant to my own opinion, that the liberty is taken to insert a few lines of his report. "By the politeness of friends, I have been present at three or four examinations of those who died by this disease. The phenomena exhibited on those occasions, the hardness of some parts of the lungs, their gorged state, their dark colour, approaching almost to black, the pericardium thickened, or covered with livid spots and other marks of the most violent inflammation, demonstrated to me, in a manner the most positive, the necessity of copious evacuations of blood to cure the disease *notwithstanding the forbidding aspect of the pulse*, which commonly attends it. I was indebted to an early opportunity of this kind for, at least my confidence in bleeding as a principal remedy; and so far as I have known, every case, in which this remedy had not been used freely and early in the attack, has terminated unfortunately."

Several statements also in the Medical Repository from respectable authority tend to establish the utility of blood-letting. For the purpose of saving labour, and giving my early views of the present disease, I have concluded to finish this subject by inserting the following sketch already in manuscript.

SECTION III.

Dissertation on the cause, phenomena, and treatment of the fever which prevailed as an epidemic in Vermont, in the winter of 1812—13. *Read before the Windsor County Medical Society, on the eighth of June following.*

PERIPNEUMONIA EPIDEMICA.

GENTLEMEN,

DEVOTED as I am, with the fellows of this society, to the promotion of medical science, and the happiness of mankind; I wish not to be negligent in attempts to improve the knowledge of our *art*, or in recording facts and occurrences which are before us, in compliance with the bye-laws of this society.

As all objects around us are mutable in their character, so diseases are liable to change. This view of the material world has excited the compassion of the benevolent in all ages. If we cannot comprehend the whole design of this mutation, it still has its use, in demonstrating the wisdom and perfections of the Creator; and as it respects disease, it is of use, in exciting us to vigilance and exertion, whereby we become better acquainted with the properties of matter, and the science of life, health, and disease. But a short time since, we were assailed with what was considered a *new* disease; at the present, if our epidemic is considered less novel, it must be considered as equally formidable with the other; and the peculiar diagnosis of both warrant the assertion, that they are nearly allied, and belong to one family.

The disease, which is the subject of our present reflections, made its appearance about the 20th of Decem-

ber last, in our vicinity; but at the northward and westward among the soldiers, who were more exposed to the exciting causes, from the best information I can obtain, it began its ravages nearly a month earlier.

There was no discernible difference in the weather at that time, nor previous, from what is very common, or from that which is usual in seasons attended with much health. The autumnal months may be said to have been rather wet and cold compared with other years, but the difference could not be great. The sensible qualities of the atmosphere, especially after the first of January, were not very different from what was experienced two years before, when this same latitude was visited by the epidemic, called spotted fever, of which the present seems to be a sequel, and very similar in many of its symptoms. The winters of both these years were rather remarkable for a series of steady cold, without the thaws usual in this country, and without much rain; with an uncommonly serene sky. It may be, however, remarked, that, for several previous summers, there was an unusual fall of rain, and rather cold weather, so that the harvests of corn were very scanty, and generally of poor quality in this latitude.

Whatever may have been the predisponent cause of the disease under consideration, I think it must have been of a very general and extensive nature, and connected with, and depending upon, some particular state of the atmosphere; and we must expect to look in vain for its origin from any local cause alone, as respects geographical situation; or as depending on any particular kind of aliment taken into the body. So far as my observation extends, there was no difference in the number

of attacks and severity of the disease, in those who used corn of less perfect quality, and those who used this article of bread in its more perfect state. At the same time, it is worthy of observation, that those who were less exposed to the exciting causes, and avoided the cold of winter, fatigue, and the depressing passions of the mind, &c. more generally escaped the disease.

The extensiveness of the disease has been so great in the northern states, that the appellation of epidemic is almost lost in that of pandemic. So far as my information extends, there are but few towns, whose surviving inhabitants will not long, with grief, remember the winter of 1812—13, for the loss of twenty, forty, or eighty, of its most valuable citizens! Most valuable to society, on account of their being adult persons, and generally at the acme of human life. Few children have been the objects of its rage. One circumstance deserves attention; that where one of the heads of a family perished, the other soon followed; what I mean is, that this frequently happened, and has been judged by many to have been more common than has happened within the memory of man.

It will be assumed as a fact, that this disease is not contagious or communicable from one person to another; and that the predisponent causes exist in the atmosphere. What these are I shall not at this time offer an opinion, nor how they may be produced; but confine my observations,

1st. To the effects of it on the system; and as it is connected with its exciting causes.

2d. To a few of the peculiar phenomena of the disease; and

3d. To remedies suited to relieve the system from danger of destruction.

The undue proportion of the constituent principles of the atmosphere, is sure to affect the systems of men in proportion to the degree of this change in its healthy state; and in a particular manner according to the nature of the change so made. This is sufficiently proved by numerous facts of what are called suffocating mephitic gases, exhaling from the earth, and destroying life instantly, or exhaling from places affected with a deleterious principle, which does not sensibly affect the system at the present time, but shows its effects after an uncertain time, being brought into action by an existing cause; as we see in the miasmata producing typhus and intermitting fever. Thus a more general change may take place in the atmosphere, which may affect the bodies of men in a manner not so readily to be apprehended; but the effects warrant a change being made, as clearly as we can apprehend the different temperaments of men, and their various susceptibilities of disease; or as satisfactorily as the presence of intermitting fever proves the exposure of the subject to the misasmatic influence.

There is something more than mere conjecture in the supposition, that certain predisponent principles in the atmosphere have a particular effect upon certain functions of the system; for instance, the primæ viæ may become impressed in an especial manner by one kind of predisponent influence, as takes place in dysentery. The throat may be affected in like manner, giving origin to what is called canker-rash; or the predisponent principle may have a peculiar effect upon the membranes in the head, &c. as in spotted fever; or upon the membranes of

the thoracic viscera, as takes place perhaps in the present kind of pneumonia. So of various other affections in like manner. The great diversity we discover in epidemics, may perhaps be explained upon like principles. Hence from a small change in the predisponent principle, arises the great variety in different epidemics. This is so much the case, that hardly any two epidemics are exactly similar in their appearance.

I should for the present say, that the predisponent cause of the disease under consideration is exerted chiefly upon the pulmonary system; and that the principal agent giving permanency to the exciting cause, is cold. This last, however agreeable it may be at certain times to balance the effect of too much heat, may be considered as very prejudicial to the health of man, under certain circumstances. A person may pass through the sickly season of almost any epidemic without injury, provided he can keep the balance of his system from being broken by exciting agents; the principal of which is the sedative power of cold; which by producing a tonic spasm or fixed stricture in the finer order of vessels on the surface and subjacent parts, co-operate with the predisponent liability; and commotion and violence in the system is the consequence. The predisponent principle operates by producing a peculiar susceptibility in the system; yet of so delicate a nature as hardly to be perceived by the person affected, and might pass unnoticed if not roused into inordinate action by some exciting power. The negation of heat has always a sedative effect on the human system, and proves only stimulating, by the responding action of the system.

The irritability of the system operating against so great a load of oppression, may be sufficient to account

for the phenomena, which takes place in that state of action called fever; and especially when we consider that the operations of nature are not always well directed, producing oftentimes fruitless efforts, and such a degree of violence as to destroy some essential part, or to exhaust the excitability of the whole.

It seems to be common to this fever, as also the spotted fever, for the heart and arteries to act with uncommon violence in proportion to their ability; so that there is oftentimes much danger of wearing out the excitability of the system in a short space of time, and even before there is time for much secondary derangement to take place in the organization of the solids, or condition of the blood. The heart in common with other muscles, cannot endure an action greatly above its common habit, without falling back to a state of rest; and when it becomes exhausted of energy, by a preternatural and uncommon action, this rest is the rest of death!

2dly. With respect to the symptoms, they are all such as may admit of explanation of changes being made in the moving powers of the system, and not depending upon any morbid principle in the circulating fluids. Languor; lassitude; numbness in the muscles; lancinating pains in the limbs; under certain circumstances, cold chills; at other times none, where the depression is great; a pain very generally in the side; sometimes in the head, at other times most in the stomach, hypochondria, or region of the heart. Pain in one side or other of the thorax is, with few exceptions, characteristic of the disease. I have thought it more commonly in the left side, with a continuation through the body to the right hypochondrium, but some say most in the right.

In severe cases, the pain is extensive in the side, and is attended with a sort of cringing convulsive action of all the muscles from the shoulder to the hip. For the most part a cough; that is to say, when the morbid influence falls chiefly upon the bronchial vessels; attended with a mucous expectoration, oftentimes highly tinged with blood. At other times, there is an absence of cough and expectoration, when the morbid action falls upon the external membrane of the lungs, the pleura, the heart, the pericardium, or diaphragm. The sensation is commonly correct in pointing out the seat of disease by the pain in the part; and also the diagnostic signs pretty constantly attend the organ most essentially affected.

The first passages seem to be affected only in a secondary manner; or at least with the exception of a few solitary cases of attack in the stomach. There is not discovered a viscid sordes, nor redundancy of bile; the appetite is much better than is common in former fevers except the last, and the fur upon the tongue is generally short and white at the onset; but grows dark if fever continues. The pulse from 80 to 180 in a minute, weak, quick, and easily compressed by the touch, at the attack; but generally grows more strong and full, especially after moderate evacuations. If the force of the disease is broken, the frequency of the pulse diminishes; if not, it increases so as not to be counted.

In short, the symptoms partake of fever in general, connected with membranous inflammation, of the internal assimilatory organs, and are diversified according to the degree of irritability of the subject, the particular organ especially attacked in the thorax, and the duration

of disease; so that to detail all the symptoms would be a prolix work. It may be sufficient to observe, that the local inflammation is not strictly phlegmonic, but is of a membranous erythematic kind, not very apt to end in suppuration; but liable to give from the inflamed membranes an ichorous purulency into the cavities; but oftentimes a coagulation of lymph and pus. The termination of the disease is usually on one of the days from the third to the seventh, generally the fourth; some end fatally in a few hours.

I would fain turn from the ghastly visage of my patient; from his languid accents; from his moans of distress, and calls for help, to the third particular of my discourse; which is to try the use of means for his relief. And here I would firstly observe, that the action of the system is rapid, violent, convulsive, and, for the most part, decisive, in a very short period of time. There is as much difference between the action of the system in this disease, and that which takes place in what is called typhus fever, as there is between the rapidity of a tornado, and a gentle zephyrous breeze. Hence arises the necessity of using means, that have an immediate effect upon the system in producing quiescence of morbid action; such as are of Herculean efficacy, and yet as harmless as the retiring voice of innocence.

The remedies to oppose this formidable disease are for the most part but few, and ready at our hand; and only need in general a judicious arrangement, and timely application to be made effectual. A few medicines are all we need, and these few as much as our patient's stomach will bear. We are already in possession of powerful agents to affect the human system; and all that is

required, is skill to apply them, and seasonably, so as to appease or render quiescent morbid irritability, or bring back retiring energy to the system.

As the causes of the disease act upon the nerves, and show their morbid influence upon the surface of the body by coldness in the first stage, want of perspiration, &c.; the natural indication is to restore warmth and activity to the surface as quickly as possible. I have succeeded in this oftentimes in the use of the warm bath. It is one of the most powerful agents we can employ; whilst at the same time it is safe and agreeable. Nothing is more common than for patients to express it, as a great luxury. If it does not immediately bring on sweating, it invites the circulation to the surface, relieves external chills and internal pain, and prepares the system for the remedies which are soon to follow. Where the bath cannot be obtained for immersion, rolling the patient several thicknesses in blankets, dipped in warm water, serves as a substitute; and in obstinate cases these will need to be kept on the patient a considerable part of the time, though not so extensively. External warmth may be applied in many other ways; but from my observation, I should say, that water in a liquid state is preferable to that of steam. Warm dry flannel ought to be often used alternately with wet.* As the system is liable to suffer from a recurrence of torpor with coldness of the extremities and distress, it will be often necessary to wrap the legs and arms up in clothes dipped in warm liquor, such as soap suds, &c. repeated at intervals for a considerable length of time.

* See Chap. v. Sect. 1. note on Jenning's apparatus for conveying the gas of burning alcohol.

The next remedy in succession is blood-letting; this ought to be practised early, and in proportion to the pain and distress, without having much regard to the smallness of the pulse. We are ready to be deceived by the lowness of the pulse, and impute it to inanition, when it occurs from oppression, with torpor and congestion. Taking blood in such a case is sure to relieve the pressure of a heavy volume upon the heart and arteries, whereby the heart acts with new energy; and not only this, but as the blood is every where receding to the larger vessels internally, the head suffers by some compression in the brain. Taking of blood relieves this, whereby nervous energy is imparted more freely to enable the heart to sustain itself under the weight and pressure of the volume of blood, which cannot as yet be transmitted through the capillary vessels. By one common bleeding the circulation is promoted, and the system begins to emerge from a deep state of depression; and a sure sign of its good effects is, the patient is relieved from chills and coldness in the extremities. I have no hesitation in saying, that taking of blood, in the disease under consideration, is of more efficacy in removing cold chills and numbness, than all the alexipharmic and sudorific medicines that can be given.*

* In Chap. II. under the year 1814, is a short notice of the alarming disease, which is "now desolating many places not far from the city of Washington." It appears, that the same collision of opinion exists there respecting the disease, as did here in the winter of 1812—13. Indeed if the disease is not the same, it is attended with the same symptoms of extreme depression and sudden fatality. Doctors Trent and Hunt speak with much confidence in the use of blood-letting with external warmth in "disarming the disease of its terrors."

Bleeding ought to be repeated, as the pain and pressure in the lungs may require; it ought to be repeated until the object is attained for which we bleed, without regard to apparent debility. After the first mitigation of symptoms, if there should be a return of pain with only a moderate hardness of the pulse, it ought still to be repeated, until we have bled to the point of relaxation; that is, until an easy balance is established between the action of the heart and larger arteries, and the resistance in the capillary vessels. The bleeding ought to be practised early, before the blood is driven into the capillary and pellucid vessels in the membranes of the internal organs, which will render the cure difficult, and perhaps leave the patient, if he should survive the shock of the disease, in a state of chronic ailment. It is common for patients to be faint upon the first bleeding, and bear af-

Dr. Hunt says, "in some cases of great depression of the pulse, I have found it necessary to use bleeding six or eight times during the day, when the pulse would recover its elasticity, and the lancet then may be used, as freely and successfully as in common pleurisy." At the same time and in the same vicinity, a Dr. Martin, in reply, says, "But I wish it to be known, that all the remedies you have recommended, such as bleeding at any stage of the disease, or purging, not only hastened the patient out of the world, *but actually brought on dissolution by death!*" &c. The remedies proposed are laudanum, spirits, snakeroot, sweating, &c. His words are, these measures "*sometimes* terminate the complaint in twenty-four hours, *more or less.*" As a specimen of this "benighted traveller's" success in treating epidemic fevers, may be noticed his own statement of an epidemic, in his own parish, in the winter of 1812—13, "in the space of five months, out of a population of 1500 souls, in that short space of time, not less than 500 persons died." ! !

National Intelligencer, of Feb. 9. 1815.

ter bleedings well. The pulse rises upon blood being taken, and shows more distinct inflammatory action. The bleeding must be continued and repeated early in the paroxysm of fever, until the object is obtained for which we bleed. I am always glad if one bleeding will cure my patient; if not, I would bleed to seven times, full bleedings, if need be. I have seldom, the season past, had to go further than four full bleedings;* and as many as this, I have practised in a large proportion of my patients. In my own case, I was bled four times, and never gained ease that was any how tolerable until the last time; when I perceived by my feelings instantly, that I had gained the point of relaxation from pain, the blood was stopped; and this was the end of extreme distress. From an erroneous apprehension, that it will not do to bleed in what we call *spotted fever*, many who consider the present epidemic as having an affinity to this, have been much reserved in the use of the lancet, and have thought a very little bleeding sufficient. A little bleeding only gives room for the system to rise into high arterial action; and I have thought it better not to bleed at all, than to bleed only half enough. Dr. Moseley says, "The intention of bleeding can be answered only by performing it immediately, and in the most extensive manner, which the high state of inflammation and the rapid progress of the disease demand. Taking away only six or eight ounces of blood, because the patient is faint, which is a symptom of the disease, is doing nothing towards a cure; it is like Erasistratus giving three drops

* A full bleeding in an adult may be considered to be about eighteen ounces, often more; or so much as mitigates pain, and makes an alteration in the pulse.

of wine, justly ridiculed by Celsus. When bleeding is improper, no blood should be taken; where it is proper, that quantity cannot relieve; and it is losing time which cannot be regained."

If the bleedings are not practised early, the system suffers from the excitability thereof being exhausted; the patient sinks into an irretrievable condition; at least he passes into a state of indirect debility, which is generally beyond the control of remedies.

At other times when bleedings have been practised to a tolerable extent, yet not to the degree of manifest relief, they may be repeated to a great degree, even at a late period of the disease; if done before indirect debility has actually commenced. A young man, S. M. about twenty, had laboured under a severe attack of the epidemic four days; he had been bled pretty freely three times by the attending physician, but relief was not gained; at this period I first saw him at the latter part of the night. The smallness and amazing rapidity of his pulse, estimated by the attending physician at 180 in a minute, the extreme short and hurried respiration, the universal distress, especially the pain in the whole of the left side of the body, with a livid countenance, and spasms in the diaphragm, forbade every hope in himself and those present, that he could continue but for a short time. He was immediately invested in three bed blankets, wrung out of warm water; after continuing about thirty minutes in this warm fomentation, he began to have a more florid countenance and better circulation. He was then bled in the hand; it continued bleeding moderately a long time. The manner of taking the blood made it impossible to ascertain the quantity; I should judge not less

than a wine quart. I was guided not by the quantity but by the pulse; and as soon as a manifest change to softness with faltering in the pulse was discovered, the blood was stopped. In a short time, say one hour, he was manifestly relieved; and when I saw him the next day, free from distress; and recovered in the use of the most simple measures, and almost without taking any medicine.

The principle was fully and satisfactorily experimented in one family where seven had the disease in a characteristic manner. Two of them treated in the al-a-mode of the day; opium, calomel, pukes, neglect of bleeding, &c.; both paid the debt of nature. The other five were treated in the fullest extent of the principles now advanced. They were bled as the cases required; some four times. All had a speedy recovery. In the cases of two aged women in other families, one about seventy, the other about eighty years of age; each of them bled twice, and had prosperous recoveries. Cases might be multiplied. The temporizing, half way practice of little bleeding, little opium, little of every thing, is most insufferable, in severe cases.

Whilst bleeding is practised according to the nature of the case; the external means heretofore mentioned, ought to be more or less persisted in, according to the feelings of the patient, and along with these, frictions and blistering, with a view of equalizing action and diverting the circulation from the internal membranes, the seat of danger, to the surface of the body.

For the same purpose mild sudorifics should be persisted in, such as infusions of pleasant aromatic herbs, essences, &c. Care should be taken, that the stomach

is not more offended with nauseous drinks and medicine, than is really necessary, but it should be supplied with substances agreeably nutritious. It may be observed, that this organ is not the seat of the disease; or in other words, there is not contained in the stomach, or biliary passages, any exciting cause of the disease. The affections of this organ are sympathetic from impressions made on the membranes of the skin, lungs, &c. The nausea and sometimes puking, which frequently take place, no more require emetics, than that kind of puking, which attends a fractured skull, by compressing the brain; I mean for the purpose of relieving the nausea; but moderate emetics may be, and have been useful, by relieving the lungs; and for this purpose it has succeeded best with me, to give just enough of the tartarized antimony to bring about one or two pukings, once or perhaps twice in twenty-four hours. They may be useful sometimes in habits not very irritable, in promoting diaphoresis; but they are hardly to be trusted; and do not succeed so well in this respect as external warmth with agreeable sudorifics.

Emetics are most useful when the locality is principally confined to the internal or bronchial membranes of the lungs, whereby mucus is afforded and needs expectorating. They are often of hurtful tendency in other conditions of locality, as when it is principally in the heart, &c.* I submit to the candid judgment of those,

* In a communication from Dr. Bowen, of Reading, on this epidemic, mention is made, that the people had gained an impression from some "newspaper publications" in favour of emetics in spotted fever, that many families had a supply at hand, and as soon as one complained, "down went an emetic. This was a pernicious practice, and unless accompanied with

who have seen much of the exhibition of emetics in the disease under consideration, whether they have not seen an alarming train of consequences from their use, which do not necessarily attend the regular course of it? Much nauseating or offensive medicines of any kind are improper, the stomach needs agreeable refreshment, as is manifested by a greater desire for it, than is discoverable in almost any other fever. I am certain I have seen, and not only this, have experienced the most salutary effects from the use of rich agreeable broths, and other articles of nutriment. Where the stomach is disturbed by disagreeable medicines, it is deprived of the use of these; and the patient suffers from the want of that energy which they impart.

The only error, I am conscious of having committed in the management of my own case,* was the taking of

external warmth, so as to produce sweating, never fails to aggravate the disease. Two died in the operation."

Another circumstance related by this correspondent may be inserted in this place, as illustrative of the correctness of the principles here advanced for the cure of this disease. He says, "there were two symptoms in this disease, which often occurred, and whether separate or combined, always in my practice foretold a recovery: viz. a spontaneous hemorrhage from the nose, or a swelling of the face about the eyes, generally on one side only; occurring the third, fourth, or fifth day of the disease. Some would be swollen so as to be blind for several days. The swellings appeared to be the oedema erysipelatoidis. They were both encouraged in my practice by heat and moisture. These symptoms mostly occurred in the milder forms of the disease; however they appeared in four or five severe cases."

* Allusions to my own sickness in many respects are unpleasant; but certain circumstances seemed to render it necessary at the time this communication was made. Perhaps the

a common dose of an emetic, the day after I had taken a moderate one; the first gave me no sensible relief; the nausea continuing, another was taken next day; no relief was gained from this, nothing was brought up but what might be expected in a state of health; and I found myself after four or five operations near a state of dissolution. The stomach did not respond to the action of the emetic in the usual way; and what was raised, was by a sort of convulsive throw, and passed through the œsophagus by the force given it in the stomach, without any perceptible action from the coats of this passage. All restraint of the first passages was gone. At this momentous crisis, a table spoonful of generous wine was taken; I well remember the difficulty in swallowing it, and the invigorating power it imparted to the whole system, the stomach in particular. This was followed by the most agreeable broth; and soon after by more solid food; notwithstanding the disease was still severe. Nothing was taken of a directly stimulating quality but a few spoonfuls of wine.

circumstances, in part, exist, which might warrant the repetition here. Notwithstanding, if they could be dissevered without maring the integral connection of the discourse, it would have been done. The attack was on the night of the 26th of February. A severe impression was perceived in riding in an open sleigh against the north wind. One garment usually worn, was omitted from the circumstance of its being an uncommonly pleasant day. The wind was felt more than was expected, and the very hour can be designated, that the impression was made; although symptoms of severity did not commence until about ten hours after. The case was considered by all a very severe one.

Moderate cathartics are often proper, and in some vigorous habits they may be made more drastic by the addition of calomel. My observations lead me to believe, that the natural purging salts are preferable to the more heating drastic purgatives; these, if given too freely, are apt to hurt the appetite; and it is a fortunate circumstance, that if the other parts of the curative means are attended to, they seldom need to be repeated. After the warm bath, with bleeding, blistering, &c. had been gone through with in my own case, as also a dose or two of calomel as a cathartic, without relief, I directed an infusion of rhubarb and common sulphate of soda to be prepared; this was taken freely, and had an effect in the course of the day. The operations were followed by drinking freely of scalded milk and water, and sometimes with the addition to this of elm tea and sugar. Between three and four quarts were taken of this drink, in the course of the afternoon, and with great luxury, as thirst was present. The distress and heat in the stomach and bowels were entirely overcome, and had no return during the time of confinement, which was about fourteen days after taking the portion; and during the time of convalescence, I made no use of cathartic medicine.

Occasion has been had already to speak of sudorifics, in part; but as they claim so high a rank in the scale of remedies, it becomes necessary to observe, that our chief attention should be directed to the accomplishment of this object. If there was nothing more to be done than is necessary to bring on a sweat upon a healthy person, it might be easily accomplished;—but when we consider, that in bringing this about, we have to contend against the whole weight of the disease, it becomes diffi-

cult. It is frequently very dangerous to continue external warmth and internal means, in order to effect this object, when they do not have the desired effect, by reason of too much inflammatory action on the skin, which sometimes happens. In this case blood-letting is the safest and most effectual of all means to induce a diaphoresis. If all circumstances are equal, I make a point of bleeding my patients, until a sweat will follow by the use of gentle means. But the great diversity of habits we meet with, and adverse circumstances often attending the state of disease, renders it necessary, that we employ every rational means to accomplish so desirable an object. The common seneka has succeeded with me the most effectually of any direct sudorific that I have seen used. The sixth day of disease in my own case, I took about six grains of the powder every three hours, by the suggestion of Dr. Perkins of Hanover; I at first hesitated, fearing it might disturb my stomach. Although I had sweat freely for several days in the commencement of the disease, and the inflammatory action in the system subdued as to any degree of violence; yet my skin felt to myself hard and dry like a covering of paper. Upon taking the first powder, warm bricks and additional covering being applied, I perceived a new sensation commence in my throat, lungs, and all over me; and in fifteen minutes broke out into a sweat. The state of my skin was from that time changed. The sweat was continued freely about twelve hours, with much benefit; recourse was had to the same means afterwards, as occasion required. I have used this article many times with manifest benefit amongst my patients. Perhaps many other simples might have answered the same intention.

Many respectable physicians speak highly of the *sanguinaria* or common blood-root; I am not prepared to give an opinion at present on this subject.

In various stages and conditions of the disease, benefit was received from the steam of warm water, or an infusion of emollient herbs, applied by means of a common tea-pot, placed uncovered a little below the neck of the patient, as he lays in bed; and the steam so managed as not to oppress the patient, and by a slight covering spread over the head, permit him to inhale the vapour in a very mild form.

Many other remedies of a less important nature have been used, with some advantage, in the different stages of the disease; such as warm infusions of sage, horsemint, pennyroyal, saffron, balm, &c. To these might be added the small and agreeable essences, &c. When heat and thirst are present; nitre and camphor, sulphuric acid, cream of tartar, vitriolated tartar, soda, magnesia, sweet spirit of nitre, &c. Also might be mentioned flaxseed, and slippery elm teas, syrup of onions, squills, &c. But as my design was to touch upon the more important circumstances of the disease and remedies, I shall pass these and some others of less note in silence, as I have many of the attending symptoms in the different states of the disease.

One further condition of the disease, however, presents itself well worth particular attention: a state of debility or sinking, whether induced by too great evacuations, or a recurrence of quiescence in the action of the system from a return of torpor, or admission of cold to the surface; in which case, there is a faltering of the pulse, and perhaps a sympathetic spasmodic puking, with imminent

danger of dissolution. In such a case opium is sometimes useful, and may be given in considerable quantities; likewise ether, alcohol, &c. The following has been very useful.

R. Cort. Peru.	(bark)	2	drachms.
Pimento	(allspice)	1	do.
Sach. Alb.	(loaf sugar)	4	do.
Spir. Vin.	(brandy)	4	oz.

Give a table spoonful every four or six minutes, or according to circumstances; a little warm water may be added, if most agreeable to the patient.

The chance of success in such cases depends upon the quickness of the pulse. If the pulse is slow, the success may be speedy and complete; if quick, the success may be more doubtful. The most urgent necessity alone can justify the giving of opium, even in this state, where the pulse is very quick, say 120 pulsations or more in a minute. It shows, that the cause of the disease is not yet overcome by right remedies; and in every instance where opium is given during a state of oppressed action, and before the inflammatory state of the system is subdued, it is manifestly hurtful; and nothing can justify its exhibition but some sudden emergency to preserve life for the moment. In either case, wine, alcohol, and ether should in part supply the place of opium. I have not had occasion to use opium in any form, I should say, in more than one case in 15 or 20 of my patients, and with a few exceptions, in the most reserved manner. It must be kept in mind, that whilst these remedies are used, they should be accompanied with external warmth. Cloths dipped in warm soap suds or warm spirit, may be applied extensively to the limbs.

Whilst speaking of the use of opium, calomel is brought to my mind by a kind of association of ideas. It will be mentioned only for the purpose of putting it in the back ground, as a corps-de-reserve, not to be called into action. I speak of it as an alterant; it may be useful as an evacuant along with other cathartics; but here it is chiefly useful in proportion as it evacuates, and other articles may well supply its place. If attempted as an alterant, it either has not time to affect the lymphatic system, or if it does, serves only to irritate the inflammatory state of the blood-vessels. To make the most we can of mercury, it is dilatory in its operation; and in a disease, which proves fatal in four days, oftentimes less, it is but little consolation to friends to be told, that *if mercurial action had been brought on, the patient would have survived.* If it has time to affect the lymphatic system in protracted cases, it does not give the expected relief; and oftentimes the pain, soreness, and distress are worse than the disease it was intended to cure. It is of hurtful tendency in another point of view; in the use of this, other remedies are often neglected of primary importance, and time spent, that cannot be recalled.*

Thus, gentlemen, have I given a short and imperfect sketch of my views and treatment of the late alarming epidemic; drawn up in a hasty manner, and in need of much explanation. If it is my lot to be of a different opinion from some of my brethren, I only ask that they

* This paragraph and some other observations are rather repetitions of the same subject in other chapters, but it was thought best not to dissever the original connection of the discourse. Some further observations on the disease may be seen in Chap. II. under the year 1813.

will exercise the same forbearance towards me, which I feel to exercise towards them; and every conflict that may arise, to be considered as a conflict of opinion, and nothing to be construed as personal, or in any manner affecting the reputation of individuals. Truth ought to be our pursuit; and whatever errours may be attached to me, I am willing they should be rescinded.

One further consideration presents itself to view, which I should be willing to pass in silence, did not imperious necessity seem to demand attention to a short statement of the result of my practice, founded on the foregoing observations. I am deficient in one particular in this respect, in not having kept a journal; and shall therefore state in general terms, according to the best of my recollection, with the help of my family; and say, that from the middle of December last to the present time, the number of cases that I have had the control of, in the course of the disease, must be somewhere between one hundred and fifty and two hundred; meaning cases of attack of the epidemic fever, although some of them had not the peculiar pneumonic affection. The seat of local affection might be in the head, or what is sometimes the case, in the abdomen; yet the greater part had severe pneumonic inflammation. I do not include in this number cases I may have visited in consultation with other physicians; but where others may have visited my patients, I still consider them my patients, and under my control as it relates to the treatment. But if I may have taken the charge of a case after being attended by another physician, I do not call this my patient, although I may have had charge of the case. But I will here observe, that there has been but little changing of cases in

our neighbourhood for the winter past, so far as my observation goes. I will say then upon this mode of reckoning, my calculation of the number of cases must be moderate; for I laboured hard except in the time of my own confinement; and in some part of this, was able to give directions to my pupils, who attended several in this way without a failure. Taking the matter then in this point of view, I can say, through Divine blessing, I have lost only two patients; one in December, an aged woman, whose memory is ever dear to me. I visited her first and the only time, twenty-four hours after the attack, when every symptom beclouded every hope of recovery. The other a little boy, died day before yesterday; I saw him the day after the attack, when a violent arterial action had began to subside into a weak, quick, arterial action, of the typhoid character.

Brethren. Though we have been surrounded with clouds and thick darkness, and afflictions have come near us; yet let us join in ascriptions of praise and thanksgiving to HIM, who directeth the pestilence that wasteth at noon day, for our preservation, and the opportunity we have of meeting this day, for social intercourse, and improvement in medical science.

CHAPTER VIII.

ON DYSENTERY.

. . . . . "And fluxes dire,
With suffocating pain, and thirst, and spasm,
Distract the man of hope."

SECTION I.

Preliminary observations.

The name is well enough; it conveys no idea of nosological character; merely signifying a bad or diseased state of the intestines. Its having so constantly a fixed locality, has induced some to call it a local disease; and its being sometimes attended with a want of heat on the surface of the body, has led superficial observers to consider it as destitute of the character of fever. But it must be a waste of time to undertake to prove that it holds a high rank in the scale of epidemics, and that it is as much entitled to the appellation of fever, as the plague is; and may not unfitly be called the plague in the bowels.

It will only in this place be noticed, without troubling the reader with numerous references to facts, that fevers of different characters have prevailed, previous, at the same time, and immediately after, when dysentery has prevailed; and it is a common circumstance for the disease to begin with fever, and after an uncertain time to

change into dysentery; and again for dysentery to change into continued fever. This establishes the identity of a general diseased impression; and also proves, that a translation of local affection changes the habit of disease. When the general and local predisponent causes are absent, it is a very difficult thing to make a dysentery. A diarrhœa may be induced by obstructed perspiration, cathartics, &c. When these causes are present, the slightest variation of external circumstances is apt to excite the disease. In the epidemic seasons of dysentery, the same laws seem to be regarded, as in other epidemics with respect to its spreading, becoming extinct, &c. and which were adverted to in Chap. III. The circumstances of heat and cold, drought and moisture, have no further concern in this case than acting as exciting causes; except so far as they contribute in producing the local dysenteric miasmata, in conjunction with collateral circumstances.

It usually makes its appearance in the months of July, August, and September. I have known it very considerably prevalent as an epidemic in March and April. It is the most constantly attending epidemic, or in this view endemic, that affects the people of America. Not a season passes but it is heard of in some place or other, even in this state. Its fatality at certain times and in certain places is astonishing. It stalks over the whole earth; and probably has destroyed more of its inhabitants than any other disease except the plague. "In 1316, raged a desolating dysentery in England, accompanied with an acute fever, which, like the true plague, left scarcely survivors to bury the dead."—*Webster.* The same may

be said of many other times and places. It is particularly common and fatal in camps. "The page of military history weeps less for the slain in battle, than for those who have fallen victims to this calamity."—*Moseley.*

The symptoms of this peculiar locality of disease are so well known to every body, from the frequent recurrence of the disease, and so minutely described by numerous writers, that but little seems necessary to be said in this place concerning them. One circumstance of importance appears necessary to be kept in view; which is, to distinguish between the symptoms connected with the attack, and first stage of the disease, and those which are the consequence of changes made afterwards in the intestines in the course of disease. For want of this discrimination, great confusion has seemed to prevail, not only in the opinions of practitioners, but amongst writers on the disease. The most preposterous and contradictory remedies have been proposed and practised; and certain remedies which have been from experience found useful in the latter stages of protracted cases, have been applied in the first instance, to the great detriment of the patient.

To mention only a few of these may be sufficient to establish the position. Concretions of heterogeneous matter have been discovered sometimes in cases of some continuance, and when present should be removed by cathartics. Upon the discovery of these scybala, it has been apprehended by some writers, that they were the principal cause of the disease; and in consequence of this opinion, the poor patients have had to endure the

distress of repeated cathartics; whereby an artificial flux is added to that which is already insupportable from the disease. Again; opium, astringents, and spirits have actually been useful, discreetly managed after the fever and inflammation have principally abated in protracted cases. In consequence of this beneficial effect, they have often been used in the beginning of the disease, to the great injury of the patient.

Another circumstance must be adverted to, which is in its nature almost unpardonable. On dissection the intestines have sometimes been found in a gangrenous condition. For the purpose of attempting to avoid this, remedies have been early used, possessing what are called antiseptic qualities; these are almost wholly such as aggravate and increase inflammation. Now as it is demonstrable beyond all contradiction that this disease is an inflammation of the coats of the intestines, and connected with general fever as much as any other epidemic disease; also it being very manifest that the gangrenous state of the bowels is preceded by inflammation, which terminates in mortification, the fatal tendency of these measures is made manifest. If instead of opium, wine, bark, and the dread of blood-letting, the reverse of these, with diaphoretics were used, and inflammation suppressed, the dreaded gangrene would almost certainly be avoided. It is very curious to hear a fellow of the Edinburgh College of Physicians,* whose collections are sometimes appealed to with respect, assert in this disease, when speaking of inflammation, *that it rarely occurs.* "When it does attend dysentery, it is the consequence, not the cause of the disease; and therefore

* Dr. Wilson, page 432, vol. ii.

seldom supervenes early." "Instead therefore of letting blood in all cases where the strength can bear it, it will be found a maxim better supported by experience, to avoid it, whenever the symptoms can be otherwise allayed."

It has always been the misfortune of the science of medicine, that maxims and precepts have oftener been imposed from some eminent lucubratory of abstract speculation, than from the humble retreats of clinical observation. In opposition to what has just been advanced, stand the opinions of a great many writers of reputation; to mention *Lieutaud*, Likenside, D. Monro, Moseley, and Rush, would be naming only a few. But we are going beyond our design. If so, we *must* observe a little further, that our author asserts, "inflammation of the intestines is known here, as in other cases, by the great severity of the pain and tenderness of the abdomen, and by a frequent, *small*, feeble pulse, more or less hard; symptoms which warrant blood-letting at all periods except the last stage." It must be acknowledged by every practitioner, much conversant with this disease in a severe form, that these symptoms are very obvious, even on the first day of the disease. And it will be asserted that they require blood-letting at any stage or period.

The great misfortune in all this business is, that the only safe remedies must be omitted until we find our patient sinking in death. For we are told, "the tendency to gangrene is often so great, that it supervenes on a degree of inflammation *too slight* materially to affect the state of the symptoms."

But the fact is altogether different. It is inflammation from the first; as much so as that state of disease last

mentioned in the membranes of the thorax. The evil attending it all, is the degree of inflammation and its fatal tendency are not recognised, until that flood of evidence is produced which marks the violence of a disease, which cannot now be controlled by proper remedies.

But this disease does not always terminate in gangrene, when it proves fatal. It terminates fatally sometimes in a few hours, like other severe epidemic diseases. In the seasons of epidemic dysentery, which has prevailed in this section of the country a few years past, and before the spotted fever prevailed, it was frequently the case, that the disease would terminate unfortunately in twenty-four or forty-eight hours. Upon dissection, no traits of gangrene were discoverable at even a later period. As this chapter is devoted to miscellaneous observations, without any thing like systematic arrangement, it might be acceptable to insert a sketch on this disease, which I made in August, 1802, containing three cases of dissection, and which was put in the public print at that time. The practice proposed has ever since answered my most sanguine expectations, in general terms.

SECTION II.

Dissections, and treatment of Dysentery.

"AFTER searching for the best, and trying most of the measures recommended by authors and practitioners, the conviction was impressed upon my mind, that little indeed was the benefit obtained by the common method of practice, although as large a number of my patients recovered as that of others. Under these embarrassments, in the year 1798, I determined by strict inquiry to form

a mode of treatment more to my satisfaction, if possible. I accordingly obtained leave to inspect the bodies of two that season, who died of this disease; the appearances of which I shall here insert.

Case I—Was a boy of sixteen months old, who died the sixth day of the disease, with all the common symptoms of dysentery, viz. some vomiting, frequent purging of bloody mucous matter, with pain and tenesmus; fever with a small quick pulse; and although purging was "assiduously employed," no hardened fæces were ejected. Upon laying open the thorax, nothing preternatural was discovered. In the abdomen, the omentum, stomach, intestines, and liver, appeared natural and entire. After detaching the intestines, and beginning at the bottom of the rectum to lay them open, the seat of the disease appeared, viz. in the internal membrane of the colon and rectum through their whole extent to the cœcum. The external coat was not altered much, except a turgescence in the mesenteric blood-vessels; but the inner one was greatly fretted, inflamed, and abraded, apparently extending into the muscular coat, with innumerable red specks or points, from which probably issued the blood that was ejected; the red specks were very contiguous, insomuch that the membrane had almost the appearance of a red or inflamed surface overspread with a coat of mucus, or rather sanies; upon scraping off this sanious mucus, the red points became distinct. There was nothing in the whole tract of the stomach and intestines, except a very small quantity of the same kind of matter which was evacuated per anum, and one worm. The intestines were distended to full their natural size with air.

Case II—Was a boy a little older than the former; he died about the fourth day of the disease, without taking scarcely any medicine, and no cathartics. The appearance upon dissection was very nearly like the former; his bowels being about as empty as the former, and moderately distended with air. The whole tract of the internal membrane of the colon and rectum exhibited one continued abraded or superficially ulcerated surface, with the same appearance of spots, &c. There was no obstruction nor constriction, nor any signs that there ever had been, in this, or the former case.

Case III. This present week I inspected the body of a child, nearly two years old, which died of the dysentery on the 7th day of the disease, in which the common evacuant method had been pursued. The appearance was very similar to the preceding, except the abrasion or membranous inflammation was more extensive, but not quite so violent in the lower part. Spots as before; a slight redness perceived in the external membrane of the intestines, and mesenteric blood vessels very turgid with blood.*

The appearance in these dissections gave a different turn to my reflections on the pathology and cure of the disease. I could not conceive why, in such an empty and irritated state of the intestines, cathartics, so commonly inculcated and practised, should be useful, by being

* It may be remarked, that the membranous inflammation is not always strictly confined to the inner coats of the rectum and colon; I have seen portions of the small intestines and stomach slightly inflamed. Authors relate cases of the small intestines, stomach, and even liver being highly inflamed, and even mortified. As cases of other disease show sometimes a more extensive affection, so this may be more widely diffused.

repeated at the commencement of the disease. Although so commonly used, I seldom ever knew an instance of their utility, and by lowering the vigour of the system, and increasing the afflux of humours to the internal parts, have known them do hurt. As to the scybala or hardened fæces, that are said to require them, I believe their existence to be a rare occurrence, and when present, rather the *effect* than the *cause* of the complaint. If the sweating method, hereafter mentioned, has been pursued properly, the fever abated, and the flux shall still continue, there may be ground to suspect that this is the case, when mild cathartics may be proper.

There is constantly a fever connected with this disease, but it seldom shows itself outwardly in the usual course of it; the complexion is pale, the eyes sunk, and no sweats but those that are cold and clammy; whilst internally there is a quick pulse, and burning heat in the bowels, with erythematic inflammation, and irritation producing spasmodic pains, &c.

Dr. Sydenham's opinion of the pathology of this disease is the most rational of any I have ever seen; "a fever of the season, or of its own kind, turned inward upon the intestines."*

The indication of cure comes in of course; which is *to turn back the circulation to the surface of the body*, by way of revulsion from the intestines. And this must be done principally by sweating.

As far as I have used this method I have rarely found any difficulty in speedily removing it, when practised in

* From what has been suggested in the former chapters, our pathological views of this disease, will be sufficiently apprehended, and will not need further illustration.

the beginning of the disease, before the intestines become too extensively inflamed, and the patient too low; when properly conducted it precludes the necessity of almost any other measures, except such as are adapted to accompany and promote the process of sweating. In less than two hours the patient perceives sensible relief, and gains strength instead of growing weak by the evacuation. The sweating must not be done by halves, but effectually. It must be understood that this is in the onset of the disease; if not practised till late in the disease, sweating must be more moderate, but continued longer. A profuse sweat must be kept up until the patient feels complete relief; then moderated a little; but the patient ought not to be suffered to leave his bed, nor the sweating to subside wholly for twenty-four or forty-eight hours; and even then with great caution. External heat and perspiration need to be continued sometimes several days. Patients bear it better than might be supposed by those not in the habit of observing the operation in this disease.* The air in the apartment ought not to be too much confined, but sufficient bed clothes added to keep the warmth, but not too greatly burdened with covering if sweat does not flow.

Sweating should be promoted by internal means; for this purpose give a sudorific powder composed of appropriate portions of ipecacuanha, opium, vitriolated tartar, and gum camphor; this rarely fails when rightly exhibited of answering the intention. The proportions of ipecacuanha ought to be so large as to produce two or three emetic operations; if this does not happen from

* See Chap. v. Sect. 1. note on Jennings' apparatus for conveying the gas of burning alcohol.

the first dose, it ought to be repeated in an hour, taking care that the proportion of opium be only sufficient in the whole to moderate the spasms; one small dose is usually sufficient. If vomiting does not sufficiently follow the first dose, the powder may be repeated without the opium. A sudorific similar to the above should be given every four, six, or eight hours. The object in the use of opium is to allay extreme spasm, and arrest the disease, so that time may be gained for the use of more safe remedies. In the greatest proportion of cases it may be dispensed with.

After, and even during the emetic operation, the patient ought to drink plentifully of pleasant warm drinks, such as sage, mint, balm, or green teas; or coffee, water gruel, sago, broth, &c. But be sure to take nothing cold or acid at this stage of the disease. After the sweating has been used some time, emollient drinks will be useful, such as an infusion of slippery elm bark, comfrey, mallows, &c. as likewise milk and water scalded together.

Bleeding is very proper in this disease, and ought to be practised, many times, when from the smallness of the pulse, it hardly seems indicated. It is very necessary to take blood, if the patient, upon attempting to sweat remains dry, hot, and restless; in this case it is the best means to promote sweats. Blood should be taken until pain is mitigated, and until sweat flows. If blood is taken early in the disease, the pulse will most certainly rise upon its use; and it will need to be suddenly repeated, until the severity of the disease is overcome along with sweating and other means.

In the course of the sweating process, small doses of some agreeable stimulus to the stomach may be proper,

such as oil of rosemary, essence of peppermint, essence of box-berry, lavender, &c. Other remedies become necessary in the latter stages of dysentery; but whilst there is any fever with quickness of pulse, and inflammation present, the above may still be the most eligible method.

The process of sweating may be objected to by some on account of the difficult management; it is true strict attention becomes necessary during the sweating operation, to keep children covered, and to conduct the business so as to answer the intention effectually; but it may be done, and the time will be short, and the necessity of going to stool soon removed. It is better to spend twenty-four hours in strict attention, than to run the hazard of having to bestow hard attention for a week or more, perhaps unsuccessfully.

I do not expect that every patient will recover under this or any other management practised at large; many accidents may happen to divert the proper order of procedure; precious time may be lost in the first onset of the disease; but I anticipate with serious expectation the time, when it shall be adjudged, that the method of revulsion in dysentery by bleeding and sweating, shall be deemed of as much benefit to mankind perhaps, as the inoculation for the small-pox has been in ameliorating that destroyer of millions. Aug. 6, 1802."

SECTION III.

Miscellaneous observations; and treatment continued.

This little scrap had its desired effect. Many people informed me afterwards, that they had cured themselves or their children in severe cases, by following the sim-

ple directions it contained. It has been spoken favourably of by many candid and judicious physicians. One little acknowledgment from a friend, to whom I sent a copy, will be inserted. "When the dysentery prevailed in this town, in 1802, I lost the first ten of my patients; not one lived until I received your kind and benevolent communication, which was strictly adhered to; and I never have lost one since. I never have been in the habit of giving catharties so freely as some in the dysentery."

In some seasons the disease rages with a violence but little short of the spotted fever, or the yellow fever, or even the plague, in certain neighbourhoods or villages. Nothing short of the early and most assiduous use of the remedies of epidemic fever can arrest its fatal tendency. The circulation must be brought back to the surface, and action perpetuated there, and the internal inflammation suppressed, or the case will go wrong. As in other severe affections of the epidemic kind, the time is short, therefore none should be spent in imaginary conjectures and hopeful expectations. The same rules with respect to bleeding and sweating should be regarded as in other epidemic diseases. With respect to vomiting, it is a little different. This is generally proper, and by inverting the spasmodic peristaltic action of the intestines gives great relief. It also assists in promoting action on the skin. In very weak habits it should be employed with caution, especially if spontaneous puking is present.

In strong habits, a severe emetic of cerated glass of antimony, or of tartarized antimony accompanied with sweating, will often arrest the disease in a short time, if

early employed. In such cases a severe cathartic by its general effect on the system in restoring equality of excitement may arrest the disease. But after the disease has become fixed with inflammation of the intestines, sometimes only after a few hours, cathartics should be employed with much reserve. The most gentle, oily or saline cathartics may be used at long intervals in the course of the first ten days or thereabouts; and nothing severe, unless after the force of the disease has in a measure subsided, the pain continues, and gives an assurance that there may be a lodgment of colluvies, or of hardened fæces in some part of the intestines, perhaps in the arch of the colon; when more active cathartics may be proper. In this case an emetic preparation, so managed as to have a cathartic operation, may be very useful. I have more commonly used the common Glauber's salts and rheubarb, infused in a large proportion of water. As an eccoprotic, manna and cream of tartar in a large proportion of barley water is useful. If castor oil can be obtained free from rancidity it will be sometimes very proper.

The appearance of scybala is very rare in this country. Perhaps I may have met with them in one case in an hundred. In one communication it is asserted, "that in eight years practice, and in more than three hundred cases of real dysentery, not a solitary case appeared, with or without cathartics, of the scybala spoken of by authors." If, however, the true scybala do not appear, a colluvies of vitiated matter may occasionally need removing, in protracted cases.

The patient ought to take a large proportion of warm bland diluent drinks in this disease, especially in the fore

part of it. They are of essential service in filling the intestines, and washing off depositions of excrementitious matter, supplying the absorbents, &c. If the stomach will bear nothing more, the patient should try to drink simple water as hot as he can sip it. This is most proper in the first stages of the disease, but occasionally very proper at later periods.

Warm applications should be continued almost constantly to the abdomen whilst pain continues; such as flat pieces of wood from boiling water, or sometimes heated by the fire. Warm bricks, bottles of hot water, &c. Some of these should occasionally be applied to the perineum, and sometimes to the back. If much heat should arise externally, as sometimes happens after the first days, these external applications may be omitted.

Like as in other fevers, the state of action varies, and the patient needs, and the appetite designates the necessity of using liquids of a cold temperature. Accordingly after the first process is gone through with; the sick will sometimes have a great desire for cold drink, and in particular for cold water. When this is the case, it may generally be indulged. I have seen the most manifest benefit from the use of cold water in such cases.

In the summer of 1811, a few severe cases of dysentery were met with in this place. In the case of a child about sixteen months old, the use of cold water saved it. The child had not been under my particular regimen, until the third day, and then nothing could be got down but cold water. At this time a deathlike coldness overspread its whole body; it seemed almost ready to expire; when cold water was offered, it was taken with avidity. It was permitted to take what it would. Several pints

were taken in nearly as many hours. It showed signs of warmth and a better condition within half an hour; but it was not until about four hours that it gained natural warmth. It had a speedy recovery without any other means.

At nearly the same time, a woman who had been sick seven days, but materially relieved from the violence of the disease by bleeding and sweating, was exercised with a sensation of intolerable internal heat; she took large quantities of cold water with great relief; and which seemed to contribute much to her recovery.

Whilst relating cases, the following may be briefly noticed, as happening the present season. I. P. on a journey, and from a place where dysentery had been considerably mortal. About twenty-five years, of slender habit.

August 15th, 1814. Thirty-six hours after being attacked, had rode ten miles on horse-back with the disease upon him. Great pain; stools every ten minutes, resembling beef brine; fever; pulse small, quick, hard, 120 in a minute; great soreness in the abdomen. Took fourteen ounces of blood; Tart. Antim. and seneka; vomited seven times; sweated freely. Bathe the bowels with balsam anodyne; flannel around the waist.

——— 16. But little abatement of symptoms; took sixteen ounces of blood. Sal. Glaub. and rheubarb; continue sweating; epispastics; agreeable essences.

——— 17. Symptoms little abated, slept some. Cathartic had operated mildly. Soda and gum arabic; small emetic of ipecac. Continue diluents, mucilages, bathing bowels with balsam anodyne, and limbs in warm water. On account of particular obstacles the warm

bath was omitted. Elm bark tea. Broth. Promote perspiration.

——— 18. Pain and fever still severe; bled again; matter voided, dark coloured, and thin. Injections of elm bark tea and milk. Occuli canrorum. Drinks continued.

——— 19. Pain and tenesmus had been mitigated; but returned. To the injections of elm bark tea and milk, was added twenty drops of laudanum every six hours; they were retained only a few seconds and were repeated but a few times. Log wood, terrajapanica, and elm bark, boiled in water; take what the stomach could bear.

——— 20. Considerably relieved; fever more diffused over the system; stools less frequent, and not so dark coloured, with some mucus for the first time perceived; perspiration continued; magnesia; warm application constantly applied to the abdomen.

———21. Continues with less distress; stools instead of every ten or fifteen minutes, with long sitings, less than every hour; continue the same. Spermaceti and sugar.

———22. Same treatment.

———23. Pulse eighty-five; stools about thirty minutes. Continue the same; with small dose of ipecac. at evening. Small doses of solution of sacherum saturni in water.

——— 24. Better.

——— 25. Convalescent.

The case was now considered safe, but from the extreme inflammation, the recovery to health was slow although the intestines were not ulcerated. Another bleeding was proposed, but as objections were made, it

was not urged, as he had been bled three times, and the chief danger was over; but I have no doubt but his recovery would have been more rapid with it. This patient took no opium only a very little with the injections. When inflammation can be overcome in the first instance, as in the present case, we avoid the long catalogue of symptoms, which are recorded as connected with this disease in a chronic state, such as ulceration; and above all, gangrene of the intestines in the early stage.

It is a fact that this disease, in some of its several forms, has been suddenly arrested, when treated effectually in the beginning; and the patient restored to a state of ease and convalescence in twenty-four or forty-eight hours. But if the inflammation has made considerable progress, it must of necessity take longer.

I am more disposed to reject the use of opiates than formerly, and never having any very good opinion of them, I now almost entirely reject them. At the beginning of severe cases, a small dose sometimes is necessary to give a little composure whilst other remedies may be employed, especially if puking attends. And again, after violent inflammation has abated, very small doses, ten drops of laudanum night and morning, may allay tenesmus; but often in this case, what is gained for the present is lost in the sequel; the patient is commonly worse after it. Given with any freedom in severe cases of inflammation, they will ensure an unwelcome termination.

Of all the cathartics usually employed, calomel is the most improper. It has a peculiar property of inflaming the delicate membranes of the stomach and intestines.

A very popular author* remarks, that calomel "is one of the best cathartics in this disease;" and says in the same paragraph, "In many, particularly when taken alone, it occasions tenesmus, and I have repeatedly seen it induce a temporary dysentery." But I will no more blot my book with borrowed absurdities and contradictions.

Great diversity exists at different times or seasons, when this disease prevails, in the degree of violence and its fatal tendency. Sometimes it is a very mild disease; and great numbers are affected and recover without much confinement. Most generally, however, it is a disease of great severity, hardly inferiour to any that affects the people of this region. The local inflammation affects organs supplied from the sympathetic nerves; great prostration of the vital principle suddenly ensues; and unless the force of the disease can be quickly diverted from the intestines, the patient falls suddenly before it, as in spotted fever, &c. I have seen as much, or more benefit from the sudorific process in this disease as in any other whatever. I am willing to declare, as a matter of opinion, that the cases of severe prostration of vitality cannot be cured without it. And again, the energies of the system cannot be drawn forth, and the mesenteric congestions relieved without adequate bleeding. But as in all other diseases, remedies have their limits; and those measures which with a judicious management prove useful in one case, may be hurtful in another when not discreetly administered. Hence arises the necessity of a competent knowledge of diseased physyology, which can only be obtained by observation and the exercise of the judgment.

* Wilson.

The most lucid and interesting writer I have seen on dysentery is Dr. Moseley. He is an advocate for bleeding and sweating to the point of relief. He says, "When I propose a method for the cure of this disease by a course of sudorifics, I am aware of no objection that can possibly attend the novelty of the doctrine; except that it wants the sanction of the fathers of physic, and has to oppose the errours and prejudices of custom."

The chronic state of this disease, and as connected with ulceration, is relived by moderate external warmth; wearing a broad flannel belt around the abdomen; mild cathartics as circumstances require; using mild nourishment in a liquid form; mild astringents; balsamic syrups; mucilages; whey; a rocking bed, or riding in a chaise, &c. I have known the avens-root, caryophyllata, boiled in water, to which may be added sugar and milk, particularly useful.

With respect to the contagiousness of dysentery, it will only be observed, that evidence of an assimilating or fermentative principle, passing from one person to another, has never been given. The local cause exists in the neighbourhood of the epidemic. All matters, capable of producing the peculiar local effluvia, may increase its strength and hurtful tendency. The perspiration and other excrementitious matter of the sick may be, and probably are of this kind; and therefore ought to be neutralized, or removed, or interred.

CHAPTER IX.

ANGINA EPIDEMICA, OR CANKER-RASH.

"Quod ei certe non confitendum modo fuisset, verum etiam prodicandum." CICERO.

SECTION I.

Preliminary Observations.

THE vulgar name is preferred to angina maligna, cynanche typhoides, scarlatina anginosa, &c. All names, in any manner descriptive of the type of epidemic diseases, ought to be discarded; for the predisponent causes and state of the system are so variable, that no name can suit them, nor can it apply, in the manner observable, in the invariable affinities in chymical combinations.

Perhaps in no disease, has false theory been productive of greater mischief than in this. As the disease has invaded this country at uncertain intervals of about seven or eleven years; the younger part of the profession are obliged to have recourse to books chiefly for information. In looking into those of the highest authority, they find but little better than confusion and uncertainty. With a view of establishing the favourite theory

of specific contagion, the advocates of this have had to divide the disease under consideration into two or three distinct diseases; and have been forced to assign as many kinds of specific contagions, for the purpose of supporting their theory. Laboured attempts have been made to prove, that *angina maligna* and *scarlatina anginosa* depended on contagion for their propagation, possessing a specific difference. These authorities are so generally known, that it is unnecessary to refer to them; if we should, it would be necessary to refer to almost every treatise on the subject, that is extant.

By all these imitators of great men's errours, it is, notwithstanding, acknowledged, and the fact is undeniable, that when cynanche maligna prevails, some cases appear of less severity, and are, therefore, called scarlatina anginosa. And again, when the latter rages in any place, many cases appear of greater severity, and must, therefore, be called cynanche maligna. And in consequence of this, a different contagion must be assigned, and the patient must submit to a very different regimen, although the disease may be the same, only differing in degree.

It is acknowledged, that both diseases are attended with soreness and ulceration in the throat, and that both are attended with eruptions, and often in the sequel with adipose swellings. And it may here be remarked, that there is no more propriety in dividing this disease into two kinds, than there is of dividing any other epidemic. It is always the fact, when any epidemic prevails, some cases are more mild and others more severe. The severe cases have been called malignant, and this has become synonymous with putrid; it is hoped the use of the word *ataxic* will correct this errour.

It may further be observed, that when epidemics of the same general character prevail, in different periods, they do not assume the same degree of violence; some epidemic periods afford a much greater proportion of severe cases than others. This is conformable to the observation of all practitioners in other epidemics, such as epidemic pleurisy, dysentery, and even influenza. Only apply the same analogy to epidemic angina, and the mystery is solved. The same parallel facts are noticed in the acknowledged contagious diseases, such as small pox and measles. At some periods, there will appear a great proportion of severe cases, called the confluent small-pox. When the measles prevail at certain periods, giving a strong pestilential diathesis in the atmosphere, many severe cases will appear, called by some anomalous, or malignant, or black measles, &c. Any one, that is not already satisfied of the unity of the hurtful principle in angina epidemica, is at liberty to observe and think for himself.

In Chap. III. Sect. 2, a short attempt was made to show that none of the varieties of angina epidemica were communicable from one person to another; or in other words, were not contagious. If any thing further needs be observed, it might be urged, that the extreme uncertainty of the time of the eruption might be mentioned; in some cases, appearing in the first hours of the attack, at other times, not until the fifth or seventh day. Also the great diversity of the appearance of the eruption. In this, it shows an analogy to spotted fever. Also the analogy to this is observable in the circumstance, that the eruption gives no relief to the pain, fever, or danger of the disease. This is very different

in all diseases from proveable contagion. Again, many cases of severe angina epidemica appear without any eruption, when the fever and inflammation in the fauces are exquisite. In this also, the analogy is greater to spotted fever, and other acknowledged noncontagious epidemics, than to diseases of specific contagion.

This disease sometimes appears sporadically. I have witnessed some solitary cases in the midst of the prevalence of other epidemic diseases. An instance is mentioned in Chap. II. under the year 1810, by Dr. Powel; again in 1814, by Dr. Allen.

To this may be added, that no series of facts have ever come to my knowledge from any writer, sufficient to prove satisfactorily, that the disease is communicable; it seems, that this has been taken for granted in this disease, as it was by many in this place of the spotted fever, in the season of its first appearance. It was with great difficulty, that the generality of mankind could be prevailed upon to believe, that it was not *catching*, as the phrase was. I am well informed, that at Wareham in Massachusetts, a man who was said to have died of spotted fever, was immediately interred in a tarred sheet, and without the customary rituals. He was sick only about 12 hours, and was thought to be mortified before he died! Also at Deerfield, in New Hampshire, an unfortunate neighbourhood were attacked with this disease in Sept. 1807, eight of whom died. The belief of its contagiousness was so great, that the people "were afraid to lend their friendly assistance in sickness and burying the dead, which the laws of nature and gratitude demanded. The husband, with his heart swollen with grief, was put to the painful necessity of assisting in laying out his own

wife, for interment. Clergymen refused their assistance, &c. They chiefly died in about twelve hours, and were supposed "to be mortified." *Walpole Observer.*

Were it not for one circumstance, the spotted fever might now have been considered contagious; which was its progressiveness. Although the first cases in other places, at its first appearance, were pretty severe, yet they were but few in number. If the disease had become extensive, in 1807, as it was in 1811, it would even now have been considered, by a great proportion of people, as contagious; more especially if a few influential men at a distance had sanctioned the idea. But we have digressed beyond our limits.

This disease has prevailed twice, as an epidemic under my immediate inspection; and each time, it was about two years in passing through the neighbourhood. Sometimes a little abated, and again more frequent. The first knowledge I had of it, was in the year 1795. It was progressive in violence, and in the frequency of attacks. It raged in its greatest severity in the winter of 1795—6, at Bethel, where I then practised, about fifteen miles from this place. But from communications from two correspondents it appears, that it raged about forty or fifty miles south of that place, in this state, in 1793, and 1794. These were the years it prevailed in "Massachusetts, Connecticut, New York, Pensylvania, &c." *Webster.* It again became epidemic in this place in 1803, and 1804. In both these periods the disease appeared to be governed by the common laws of other epidemics. Great variety prevailed in the severity of the disease; the same difference as we discover in other diseases; some were but slightly affected, compar-

ed to other cases. It was, in common, a severe disease, and a great many of the youth in the country fell victims to it. Cases, which writers have called scarlatina anginosa, and also cases of what they have called angina maligna, could be readily distinguished. The mildest cases could be transformed, by wrong management, into the severest, accompanied with the symptoms of angina maligna; and in many instances, if I am not greatly deceived, the severest cases were transformed into the more manageable form, called scarlatina anginosa.

It may be worth while to attend for a moment to the further analogy, that seems to exist between this epidemic and spotted fever. They both rage with their greatest violence in the winter season; they most commonly affect children and young people; they are both severe diseases, and the period of their termination nearly alike; one diagnostic symptom is common to both diseases, which is a pain in the forehead under the frontal suture. Perhaps this cannot strictly be considered a diagnostic symptom, it being common to both diseases; and on account of its being sometimes absent; but it very commonly attends both. Many other analogies might be noticed, but we shall dwell no longer on this, it being our more important design to notice the great analogies of all elementary fevers.

Does not the circumstance of the sympathetic nerve, supplying in part the organs of the throat, incline the membranous affection there to partake, more or less, of the ataxic character?

SECTION II.

Symptoms.

It is now necessary to take a more particular review of the symptoms of this disease. Our notice of these will be short, as they are fully detailed by many writers.

It attacks people of all ages, but is most common, and most distressing in small children. Those at the breast are not so liable to this, nor any other epidemic, as they are when one or two years old. The younger the subjects are, when attacked, the greater the danger; partly from the aptitude in young subjects to sudden and high responding febrile commotion, and partly from the inability to cleanse the throat. It is most likely to attack, like all epidemics, those possessed of the most irritable fibres. The disease is excited by the common exciting causes of other fevers.

The symptoms at the attack are in common with other fevers, lassitude, drowsiness, cold chills, followed by heat, pain, &c. The distinguishing characteristic of this disease is that the local inflammation falls upon the fauces or internal throat. From this, most commonly, proceeds a reflective or sympathetic eruption, extending progressively from the throat over the whole body, which is often of a scarlet or crimson redness. The eruption usually appears on the second or third day, but is subject to much irregularity. In some of the most severe cases, it does not appear at any period, but most commonly attends. It may pass away in a few days, and takes with it after some longer time the cuti-

ele, either in a branny form, or after some length of time, where it is very thick, in large flakes.

The inflammation extends more or less from the fauces into the adjacent muscles and glands, appearing externally with soreness and enlargement. In some cases the swelling externally is very considerable, and rarely ends in suppuration.

The inflammation spreads to the internal membrane of the nares, and also to the membranes of the brain, where it is attended with different degrees of violence, and marks in a principal manner the danger of the disease; producing various symptoms in common to erythematic inflammation of the membranes of the brain.

It sometimes follows the eustachean tube to the internal ear, producing deafness, with a discharge of purulent sanies.

The inflammation, as in other epidemic affections, spreads along the course of similar texture through the larynx, trachea, and lungs, with different degrees of violence; sometimes producing croup, and sometimes, though rarely, pneumonia. It often extends along the whole tract of the alimentary canal, and appears in the anus by excoriations; producing in the stomach nausea, and in the intestines diarrhœa. Some have imagined, that this affection of the primæ viæ was from swallowing the effused matter of the throat, but facts and analogy teach differently.

The progress of the disease depends wholly on the state of the fever. The inflammation of the fauces is altogether in conformity to the violence of general diseased action. Various symptoms are discoverable in the system, as depending upon different degrees of fe-

brile violence, which are not important to mention individually.

Some further attention should be given to the inflammation of the fauces. The soreness and pain here are synchronous with the first symptoms of fever; and if I am not mistaken, I have noticed often the affection of the throat, as the first ostensible symptom. If so, I have no inclination to consider this a local disease, any more than dysentery; but a general disease, whose locality is in the throat.

The fauces at first look red, slightly affected with swelling, not of the phlegmonic kind, but a thickening of the membranes; the tonsils appear enlarged, but do not suppurate. Within twenty-four hours, the membrane of the fauces discharges viscid matter or tough phlegm; exhibiting, at the same time, specks of an ash colour, which slough off, and show an ulcerated surface, discharging various conditioned matter. This marks the milder or more manageable form of disease, which, however, often proves fatal, under the treatment commonly recommended for cynanche maligna.

If the prostration of strength is great, and the system labours under an oppressed circulation, with a quick pulse, and but little activity in minute vessels, being the highest grade of diseased impression; in this condition, the colour of the inflammation is of a deeper red, and the spots of canker of a brown colour, and in a short time, the fauces appear covered with a dark coloured exudation, which casts off, followed by a sanious discharge. In this case, the countenance is commonly pale and dejected, &c. The same ichorous matter is sometimes discharged from the tonsillary, faucial and nasal membranes, and may continue for weeks in some cases.

In 1803, I saw a case of this kind of four weeks continuance in a child, who had not proper attention, where worms were discharged from the nostrils.

The pulse is generally very quick, from an hundred to an hundred and forty, often small, irregular and oppressed; and often hard, with considerable fulness; subject however to all the variations incidental to the varied states of general oppressed action.

The heat on the surface is often very intense; but in a considerable number of cases, it is moderate. The adnata of the eye is streaked with blood.

The period of termination of this disease is uncertain, like all other epidemic diseases. It terminates fatally sometimes in twenty-four or forty-eight hours, most commonly on the fifth day, and, in protracted cases, not until three weeks.

The disease is often followed in about three or six weeks with an universal congestion, or bloating of the cellular texture of the body, not of limped water, but viscid mucus; so tenacious, that it does not fall to the depending parts of the body.

SECTION III.

Treatment.

Whilst it is the opinion of some, that these two varieties of angina are specifically different, they are led to presume, that the treatment must be very different. Undoubtedly the treatment admits of some variety, as it will in all epidemics of the same general character; but still, we ought to have the great leading objects in view, in the treatment, that we have in all other elementary

diseases, and in all other diseases, connected with febrile commotion. Strict regard should be had to the identical state of diseased action, to be ascertained and measured by the judgment of the physician whilst examining the case. If an opinion should be grounded on the presumption, that the disease is of the typhoid character, and that the reigning epidemic is malignant or putrid, in all cases, he may be greatly liable to be deceived, if not in the diagnosis, yet he will be in the treatment. For custom seems to have fixed an indissoluble connection between typhoid and the treatment of high stimulation. The dread of all evacuations is connected by an unbroken association, and whoever dares transgress the ancient oracles must be adjudged guilty of mal-practice.

All that has been advanced in the previous chapters relative to the oppressed state of the system, and the condition of dormant action in the minutest vessels, will apply here in its extent. The greatest danger is to be apprehended in those cases, where the febrile action is not capable of being diffused through the system; when there is no capability of producing such a degree of vigorous action on the surface and minute vessels, as to restore equality of action to the torpid vessels. In this case, paleness appears in the skin, the eyes are sunk, and the countenance fallen. Action languishes in the fauces, and these are covered with a darkened exudation. Small quick pulse. Again,

Nearly alike dangerous are those cases, in which febrile action is very vehement; attended with much redness on the skin, severe pain in the throat and head, delirium, &c. These cases are more manageable in this disease, as we find the same state of disease to be in all

epidemics. In this case the indication is simply to moderate effectually the violence of febrile action to a state of mediocrity.

In the first mentioned state of the system, the indication is two-fold. First; to emancipate the system from the over-controlling power of primary diseased impressions, and give it an opportunity to respond in universal febrile action; and, secondly, to moderate this to the degree of safety. It will be difficult to separate these indications wholly in the treatment; they must progress in a measure at the same time, and be varied, as the particular case may require. As we see diseases, partaking of all varieties of severity, so remedies should be applied according to the degree of violence.

In the second state of the system, mentioned above, the febrile commotion is the greatest, when at the same time, it is manifest, that the immediate and primary diseased impression is not so great, as that in the first state proposed. In the first state proposed, the sedative cause is so great, that the energy of the system retires before it, and energy begins first to fail in the most remote parts of the system, and suddenly fails in the more noble organs, if not relieved.

Perhaps these propositions, may, in part, at least be assented to; but the manner of obtaining the desired relief, is most likely to produce a diversity of opinion. But little argument can be admitted here. Reference may be had to Chap. v. for a more particular illustration of principles, relative to the cure of fever. And in this place a short statement must suffice; and as relating chiefly to the peculiarities of the present disease.

When the first mentioned state of the system appears, being that which has been styled cynanche maligna, we

are ready to declare, from repeated experience, that the treatment heretofore proposed by the most eminent writers, is not adequate to the removal of the disease in its most dangerous form. We will not undertake to say, that any management whatever, will always prove fortunate, especially, when practised at large. But this rests as a matter of opinion, founded on facts, that, a much greater number have, and may be restored, by a different process.

The writer feels compassion for any young practitioner, placed in the condition he was in during the winter of 1795—6. Not having met the disease before, and knowing nothing of it, but what was to be found in books and the current practice, the disease often proved fatal under his own management, and also under that of others. Many fell before it, whilst the tonic and stimulant plan were diligently and indiscriminately pursued. Chagrin was a very constant and unwelcome companion. It is hoped forgiveness will be granted for errours unwittingly committed. The determination was formed to abandon the practice of medicine. It was, at length, determined to abandon every author, and the advice of every friend, and be guided wholly by physiological principles, checked by observation and facts.

Delivered from imposing mandates, the character of the disease was studied with diligence, and the effects of every remedy carefully noticed. The disease was called the ulcerous sore throat; blood-letting was forbidden. My opinion was, that some cases, at least, required it. I put it in practice in those cases partaking more especially of the second state of disease, above described, and which has a greater resemblance to those heretofore

called scarlatina anginosa. The relief it gave warranted its repetition, and in a short time, it was practised to the same extent as in other fevers. Success followed in the same ratio, that disappointment had before. It soon became my common practice to take three or four full bleedings, in the like cases, that before were thought not suitable to bear one. The event was, that almost every patient treated in this manner, and along with antiphlogistic measures, recovered. At the same time, cathartics were employed; these were chosen of such as could be given in a watery solution, on account of their being more readily swallowed, and as they could receive very readily some portion of purging neutral salts, such as sulphate of soda, vitriolated tartar, cream of tartar, &c. Almost all stimulants and tonics were discarded; and in those cases, attended with inflammatory eruptions, the patient was at liberty to choose his own temperature of warmth, meaning that which might be most agreeable.

In many cases, the swelling of the fauces, tongue and adjacent parts was very considerable, and the pain of these parts very severe. Great relief was gained by puncturing the ranular veins under the tongue, giving vent to a small portion of blood. This may be often repeated.

As it was of some importance to keep the throat free from tough phlegm, gargles were used of sulphuric or of muriatic acid in water, as strong as the patient might be willing to use them. Also common salt dissolved in vinegar, and a little diluted was useful, taken warm.

In cases destitute of eruption, or in those having a darkened colour, bathing the feet, legs, and arms, and

even the whole body, in warm water was often very agreeable and salutary.

The eruption was sometimes attended with a sensation of extreme heat; but it seldom became necessary to lower the heat by external means; bleeding and purging would commonly soon reduce it sufficiently. In a few cases, however, cold water applied by affusion answered a good purpose. In the summer of 1803, I met a case in Hartland, if I mistake not, on the ninth day of the disease, in which the eruption at that time, was attended with a high degree of inflammation; a crimson eruption and elevation of the cuticle; the pulse very rapid and hard. It was a girl of about twelve years; she had been bled sparingly several days before; it appeared that she could not have lived many hours in her situation; distress was exquisite; partial delirium with partial insensibility. I bled her about a wine quart; she was then rolled in linen sheets, wet with cold water, and this sprinkled upon her for about eight hours, when the bed was drenched with it. She immediately showed signs of amendment, and suddenly recovered without any other treatment worth mentioning. If aspersion of cold water had been practised early in this case, and without bleeding, it would probably have been hurtful.

Cases are introduced only to illustrate principles, and not to serve as precedents without the most scrupulous regard to every collateral circumstance. No invariable practice can ever be pursued in epidemic diseases; the particular circumstances of each case must determine the measures to be pursued. Whilst cold water is eminently useful in certain cases, immersion in warm water is not less so, in other cases.

We have now been speaking of the more obvious and manageable cases of angina epidemica. The more intricate part of the subject is before us in the treatment of the first state of the system described above, and which has been denominated angina maligna. This is only an higher grade of the diseased affection; so manifestly do the hurtful powers appear, that sudden oppression is discovered in every organ in the system. The circulatory system is deficient in ability to perform its accustomed round, and deficiency of action is apparent even in the heart. This organ performs its office not in the accustomed manner, but impetuously, and as it were struggling for existence. The impediments must be removed. The important question is, what will do it? If it cannot be declared what will do it, it can easily be declared what will not do it. Opium and brandy, tonics and other stimulants internally, will not do it! Not only correct theory, but experience abundantly proves this, when exhibited in the common manner. In speaking of stimulants internally, we wish to be understood in a limited manner; certain medicaments undoubtedly possessing a a stimulant power, are proper internally, but they must be those, that have a peculiar property of producing more action and warmth in minute vessels, than they have upon the larger sanguiferous vessels. It may be queried whether such medicines really exist; if so, it will be suggested that ether may be one of these; also that cayenne, seneca, and aromatic essences, may be others; and many perhaps beside these. For example, one fourth of a wine glass of common spirit, with a gill of hot water, will produce a more sudden and more effectual glow of warmth in the body, than a full wine glass of

spirit, without the hot water. Double advantage is obtained whilst using these diffusible and transient stimuli, if moderate external warmth is steadily persisted in. It should, however, be remarked, that on account of the cuticular inflammation connected with most cases, that much heat is seldom proper.

But the cure of this formidable state of disease is not to be trusted to internal stimulants; indeed only in a small degree; all the facts and arguments in Chap. v. will apply here. The patient should be immersed in warm water, or water with common salt dissolved in it; or a bath of the infusion of aromatic herbs. In these cases, warmth should be steadily applied, and action not suffered to languish for the want of their use, until a more permanent and natural action is established. The tepid bath may, therefore, need to be often repeated. Frictions should be used connected with warmth. In these cases, the eruption is either wanting, or of an aspect which proves a high degree of torpor on the surface; action must be restored on the surface, and then it is altogether immaterial whether the eruption appears or not. A very vivid eruption denotes, sometimes, a very severe case; and a small eruption often attends a mild case. It is not so much, therefore, whether there be an eruption, as whether the function of the minute vessels be well performed; or whether the exercise of vitality be well performed in the minute vessels.

We will lay aside matters of opinion, and declare it as a matter of fact, that blood-letting, prudently administered, has the effect oftentimes of removing cold chills, and restoring equal and durable warmth in the case of epidemic angina. The manner, then, that we have

usually proceeded in these formidable and perplexing cases is, to immerse the patient frequently in a tepid warm bath. In the intervals to apply a moderate warmth. Give agreeable warm drinks internally, impregnated oftentimes with some agreeable aromatic tincture, or essence; or an infusion of seneca, or cayenne.* These two last are most effectual to excite action in the absorbent system or minute vessels generally, as well as in the throat. Lose no time after the bath, in taking a small bleeding; or according to the appearance of the patient, perhaps a common bleeding, if it is borne well. Let the patient rest in a moderately warm bed. Give small doses of calomel, castor oil, honey, and cayenne, combined in the form of a linctus every hour, or half hour, so that a gentle cathartic operation shall be effected in about six or eight hours; then omit it. Apply the steam of vinegar and hot water very moderately by Mudge's inhaler, or a tea pot with the lid raised, so that a mild steam will be inhaled by the patient. Whilst these measures are in operation for only a short time, the pulse may commonly be observed to change from the greatest frequency and smallness, to more fulness and constancy; distress mitigated. The external heat should not be so intense to the surface, as in cases of spotted fever and dysentery, but it should be steadily persisted in. Blisters on the neck and arms. Sinapisms to the feet. These suggestions

* A method of preparing this, as recommended by Dr. Thomas, may be worth trial. Take of cayenne pepper, two table spoonfuls; one tea spoonful of common salt; half a pint of boiling water; half a pint of warm vinegar. Strain through a fine cloth. Dose, two table spoonfuls every half hour, for an adult.

are meant to apply to the first attack, within a few hours. If the state of the system is changed, in any manner from the ordinary condition at the attack, the remedies should be varied according to the particular case, by the judgment of the physician. Also the quantities may be varied according to circumstances.

By a steady perseverance in these, or similar measures, the torpid action of the surface, and vacillating action of the sanguiferous system, will most commonly be changed to a more steady, equable, and fixed febrile action, called inflammatory or sthenic; and in this condition approximating to the second state of the system described, usually called scarlatina anginosa. When in this state, the disease may commonly be managed; if the physician is possessed of boldness and perseverance to adopt remedies to suit the degree of morbid excitement, and is not dilatory, on account of trusting too much to the precarious operations of nature.

By way of illustration, a single case only will be related. In March, 1803, H. A. in her ninth year, an only daughter, the delight of her mother, and the fond expectation of her father, was attacked, after fatigue, with the usual symptoms of severe angina epidemica. Great prostration of strength; severe pain, especially in the head; in a few hours, brown and dry tongue; crimson colour in the fauces, with slight swelling, and an exudation, which at the end of forty-eight hours was of a dark brown. The throat so filled, that deglutition was greatly obstructed, and speech failed; slight delirium; pulse the first day one hundred and forty, and tremulous; no eruption.

Warm bath the first day, being towards evening, only

once, for fifteen minutes; kept warm through the night. Bled after the bath about eight ounces. Cathartic immediately followed by senna, rhubarb, and sal glauberi. The common gargles used; but little phlegm evacuated. Frictions moderately and frequently repeated.

The second day bled twice, and immersed in warm bath of water and common salt, three times; kept in the bath about fifteen minutes each time; every time gave some ease, as also did the bleedings. Pulse more promising at the end of thirty-six hours. Frictions continued.

Third day, state of the fever more promising, but still severe; no eruption; slight delirium; throat black; impossible to breathe through the nostrils; she had not spoken for some hours, and scarcely possible to swallow the smallest liquid. But slight swelling externally. Phlegm and sordes in the throat, so dry and tenacious as not to be removed by gargles. My wish was to get down an emetic to clear the throat. After repeated trials, enough of a strong solution of tartarized antimony was taken to effect an operation, at the commencement of the fourth day. The first operation so far removed the congested matter in the throat, that she was enabled to exclaim, "now, papa, I shall get well, for I can speak." Her recovery was most astonishingly rapid; for, by the seventh day, she was able to ride a mile in a sleigh. A considerable number in the neighbourhood had the disease at the same time, generally with eruptions. Nothing more stimulant was taken in this case, than a very little spirit of lavender and common tea drinks.

The advocates of the mercurializing and stimulating

method of cure, may enjoy the pleasure of boasting of their catholicons, if I can possess the satisfaction of seeing such cases as this restored by more humble means. I feel to speak with submission, when I say, that it was rare for a case to go wrong under similar management, and common opportunity; if practised before the stimulant plan had been used; notwithstanding the adverse circumstances attending cases at large.

A few general observations will close this section. The more strictly sthenic cases, when properly treated, terminate in health in a short time; if not properly treated, when yet the patient survives the first stage, and continues diseased, he is to be treated upon the same general plan, having respect to the particular circumstances of the case. A very mild course of antiphlogistic measures, with moderate perspiration, being all that is usually necessary. Patients seldom bear high stimulants in any stage of this disease.

If the case partakes more of the character of angina maligna, so called, and the disease is not arrested, when yet the patient survives the first stage, the case is wont to degenerate into a chronic fever with a discharge of ichorous matter from the fauces and nares, called coryza. This condition of disease is often very perplexing. A very frequent small pulse; great debility; often slight delirium; ulceration in the membranes of the fauces, even extending into the remotest passages in the nasal cavities; perhaps along the eustachean tube; also the lungs, stomach, and intestines. Where the cuticle is in any manner injured, as by blisters, scratches, &c. slight ulcerations follow of a phagadenic kind, commonly known by the name of canker. It frequently proves

fatal in about three weeks. This is a protracted case of the epidemic, occurring most commonly from neglectful or from bad treatment.

The remedies, which I have thought most useful, are, mild nutritious food in a potable form; milk; weak decoction of Peruvian bark, and elixir of vitriol; sublimed sulphur and cream of tartar, made into an electuary with molasses, and given in small doses, so as to prove moderately cathartic, and often repeated; solution of borax; weak solution of soda; sweet spirit of nitre; gargles of vegetable and mineral astringents, such as marsh rosemary and alum. Use a general tepid bath twice a day, of malt boiled in water. In every case where I have seen calomel and opium used, they appeared to do harm.

SECTION IV.

Sequel of angina epidemica.

What is called by writers the anasarcous swelling, following this disease, is spoken of as of little consequence, by those I have seen. It has, in various instances, appeared to be a very treacherous and formidable disease. The first case I met with in 1795, was suddenly fatal. A boy of about six years, by the account of his parents, had the epidemic about three weeks before, rather slightly; showed but small signs of disease afterwards, until a short time before I saw him, and then nothing to greatly alarm the family. The day previous to my seeing him, which was in the evening, he showed more signs of indisposition; appeared drowsy, and complained of pain; there was a fulness over his body, as much in his face as in his feet; a shortness of breath,

&c. His pulse was most astonishingly quick, small and tremulous; it could scarcely be counted. The family were surprised when they were told, although the case was new to me, that it was my opinion, he could not continue but a few hours. He died that night. He took a portion only of common physic.

Since that time, I have met with a great number of these cases. Many have proved fatal in this part of the country, between three and six weeks after the first attack. The ostensible symptoms are not in proportion to the degree of danger. It has been my practice to attend diligently to these cases, when they happen within my notice. I consider them as the original affection, only partially cured; producing an effusion of gelatinous fluid in the cellular texture universally, as well internally as externally.

If the case is a mild one, perhaps drastic physic, several times repeated, would be sufficient to remove the fever and depositions in the cellular membranes. If the case is more severe, it becomes really necessary to take blood, notwithstanding the smallness of the pulse, and notwithstanding any suggestions to the contrary, from apparent debility. I have bled several times in the same patient, and used active cathartics, as jalap and calomel every second day, and on the intermediate day a full dose of tartar emetic, so as to effect four or five emetic operations, and produce some sweat. This method should be repeated until the pulse is rendered less frequent, and the bloating dissipated.

Instead of debility being increased by this method, the patient grows stronger, and in a short time is restored to health. I have never known it fail to be effectual in any case where it has been used sufficiently, even in the most

dangerous states of the complaint. At the same time, I have known a very considerable number of cases, where it was supposed the smallness of the pulse and apparent debility forbade bleeding, proving fatal, whilst the tonic and stimulant practice was diligently pursued.

In 1804, I met a case in Bridgewater of the most serious aspect, in a boy of about eight years, who had been treated with tonics and stimulants, until his life was despaired of; with a pulse hardly distinguishable. With much persuasion, it was at length agreed upon to try bleeding, &c. The event was fortunate, for he was shortly cured by pursuing the above method.

One further fact may be worth relating. I have never known this state of disease occur where the evacuant and excitant method of cure was properly used, and the force of the primary disease averted in the first stages. But when it happens, it has always followed, either those cases treated without evacuations, or those which happened to be so mild, as seemed not to require much treatment.

CHAPTER X.

TYPHUS EPIDEMICUS, OR SLOW FEVER, OR CONTINUED FEVER.

"Fact shall be opposed to fact, cause to cause, and argument to argument." TULLY.

SECTION I.

Preliminary observations.

THE word typhus is derived from the Greek *tuphos*. It is the same disease which by some is called slow, or long fever, or nervous fever. It is used to express the character of a genus in nosology, including those fevers, which show more especially a nervous affection, in opposition to those which show more eminently a sthenic or inflammatory action, called synocha. As if the character of fever was to be designated, like the declensions in grammar, by the terminations of words; a fever supposed to be compounded of these two is called synochus, or mixed, or rather mongrel fever.

These divisions might be well enough to show, that some epidemics are more rapid in their symptoms and progress than others; and also to designate degrees of violence in individual cases, were it not, that influence

and custom have too much fixed an indissoluble connection between generic names and the treatment. The injury is conspicuous in this; let the name of fever be determined on, and the student will look into books and find the treatment; and this may, or may not suit the case. The symptoms of all fevers are more or less mutable, and the young inquirer will be at great loss, perhaps, to determine, whether it is real typhus or not, from the symptoms in the varying stages of the disease. Indeed an old physician will often need as many eyes as Argus had, to discover which genus his particular case should be placed in. Almost every book contains a long catalogue of symptoms of disparity in typhus or slow fever. Even Mr. Wilson asserts, that "there are few complaints, in which the symptoms are more varied, than in typhus, whether we regard its accession or its progress." It is asserted, that sometimes "its access is so mild, that for several days, the patient is not sufficiently indisposed to be confined to his bed;" at other times, "on the first attack of typhus, falling suddenly to the ground, as if thunderstruck." At one time, it is said, the heat of the body is not increased; at another, it is said, the heat is so great, that it is painful to rest the hand upon the sick. Again, at one time, the patient lies comatose; at another, he is afflicted with a raving delirium.

For the purpose of accommodating the geometrical rules of nosology, typhus has been divided into *gravior* and *mitior*. This only denotes the extremes; and cases actually arise in the course of an epidemic season, partaking of all the intermediate degrees of morbid excitement and corresponding symptoms. These observations are made to show, not only the folly, but the crimina-

lity of nosological divisions; they no more enlighten the honest inquirer after truth, than the ignis fatuus does the benighted traveller.

It will be premised, that the hurtful principle, or cause of fever, whatever it may be, admits of much variety; some seasons of epidemic fevers affording a greater number of severe cases than others. It will again be assumed as a fact, that some periods afford fevers, showing a propensity to affect, in a special manner, certain parts and organs of the body in preference to others. And again, it will be admitted, that much variety prevails in different temperaments, not only as respects susceptibilities, but as respects responding action. These suggestions, when considered in connection, go far in explaining the diversified phenomena of fevers. When that grade of fever most generally prevails which is called typhus mitior, many cases may be met with of a stronger or more formidable character, even answering the description of typhus gravior. When this last most generally prevails in any place, as for example, in the season of yellow fever, many cases are met with of typhus mitior. When the yellow fever prevailed at Philadelphia and other places, from 1797 to 1803, this part of the country was visited with fevers of different degrees of severity, usually called typhus mitior; some had the yellow tinge and black vomit.

When the hurtful principles are severe and powerful, the responding actions, constituting the essence of fever, are violent, unless extreme oppression is produced; and so of the reverse. Another circumstance of high importance should be kept in mind, that in the same subject, the nosological character varies in a very short time; the

gravior becomes mitior, and the mitior sometimes gravior; and either of them assumes the mixed form, or becomes more strictly inflammatory. With this mutability of condition, the nosological character is lost; and it can be of no more utility to designate the quantity of disease, or the degree of remedies, than a mute clock can be to tell the hour of time. Whoever, therefore, shapes the treatment to suit the general character of any particular genus of fever, will be liable to be misled. Mistakes are more serious to the patient than to the physician; but it is doubly unfortunate, when neither are capable of discerning them, and profiting thereby.

The inferences from these and previous preliminaries seem to be; 1st. That when the hurtful cause is powerful and principally affects the more noble organs, that condition of fever is induced which is called typhus gravior. 2d. When the same cause is less hurtful, but affects principally the same division of organs, that state of fever is induced, which is called typhus mitior. 3d. When similar or dissimilar causes affect the more dense and more external membranes, that condition of fever prevails, which is called sthenic or inflammatory. 4th. As there is a frequent mutation of local affection, so the symptoms partake of great variety. 5th. As the state of disease is so constantly varying, but little dependence can be placed upon nosological characters; they are liable to lead to fatal errours in practice. 6th. Notwithstanding the diversity of symptoms, fevers have many things in common.

The particular character of the genus may be misstated or misapprehended. It is difficult for me to understand what is stated by some, that, "in synocha the

excitement is above, and in typhus it is below the healthy degree." It is true a difference is observable in the degrees of excitement between the two genera, but in every case of typhus, morbid excitement is manifest by many phenomena, when frequency and hardness of the pulse are not very apparent. That inflammation exists in the membranes immediately investing the more noble organs, in some instances, we are fully assured by dissections, even to such a degree as to produce pus and sanious matter in the great cavities. The circulation is unequal; in some parts there is a throbbing, in others a coldness. The pulse is sometimes slower than natural, at other times very frequent. Disparity of action is manifest at the beginning of the disease more especially; but a state of febrile excitement above the healthy standard is as readily discovered, as in synocha, but not usually to the same degree.

Typhus mitior seems not to differ from other epidemic fevers, otherwise than in not possessing the same degree of violence, and suddenly fatal tendency. The morbid impressions are supposed to be comparatively mild and progressive. The responding actions constituting the essence of fever are proportionally dilatory. It further appears, from facts and observation, that the hurtful causes are fixed and difficult to be removed in proportion as they are progressive. In no fever within my observation, except hectic, has it appeared so difficult to arrest the progress of the disease, as in this. Notwithstanding, it may be here asserted, that its progress may be arrested, and its period greatly shortened. Perhaps further on this hereafter.

Every symptom and circumstance warrant the asser-

tion, that inflammation of the internal membranes is present in this habit of disease; and dissections prove the same; it is most conspicuous in the membranes of the head and abdominal viscera. The febrile congestions in the head produce the stupor, and those in the mesenteric vessels produce the enormous evacuations of blood by stool, which often happens, when the right method of cure is neglected. It should further be observed, that the internal congestions and erythema are not so distinctly located, as in some other fevers, but more diffused, occupying a greater extent, but with less severity; perhaps in many instances, affecting the coats of the great arteries, not ostensibly in the form of inflammation, but imparting a high degree of irritability.

To relieve the doubts of some, who still consider typhus to be contagious, it will be suggested, in addition to what was offered in Chap. III. that the judgment is liable to be misled from the circumstance of the length of time occupied in this disease, whereby an opportunity is offered for the generation of local miasmatic effluvia around the sick. It will not be denied, but that persons, attending the sick, are rather more exposed than others, for two reasons; 1st. They are from the nature of the employment more exposed to exciting causes, as in Chap. III. 2d. As the excretions are very liable to ferment and aid the common local cause, so it may be presumed, the noxious effluvia are more concentrated in the immediate vicinity of the sick. Admitting all this greater liability, it can hardly be said, that a greater number are affected with typhus, who frequent the rooms of the sick, than are affected under similar exposure to exciting causes in other conditions. It is again asserted from

particular observation the summer, and autumn of 1814, upon some very characteristic cases, that there is no more evidence of typhus being contagious, than there is of epidemic pleurisy or spotted fever being so.

It is very much doubted, whether affections of the mind invite or repel attacks in those diseases which are manifestly contagious; but in elementary diseases, depending upon a state of predisposition and the influence of exciting causes, the passions of the mind show a controlling influence. Dr. Barnwell, who is an English physician and a contagionist, reports; "that while at Sheerness, on board a vessel of war, an *infectious* typhus fever spread for three months amongst the crew; many were taken sick daily, especially recruits; several died; but as soon as intelligence came, that they were all to be dismissed, the sickness immediately stopped; none were attacked afterwards." Scarcely a stronger proof could be given, that the disease was not contagious, or what they call infectious. The system is again susceptible of the disease; but, on account of becoming familiarized to the predisponent principle, those who have been affected are not so liable to it.

SECTION II.

Symptoms of typhus mitior, or continued fever.

All ages and sexes are liable to this habit of disease. It most commonly affects those of an irritable fibre, as those are most readily influenced by the common exciting causes of fever. Its access is commonly mild and very progressive. The first symptoms are usually lassitude,

drowsiness, slight chills, slight headach, or pain in some other part. A sense of debility and often soreness of the muscles. For two, three, or four days, the affected will commonly pursue their business, by occasionally resting. At length, these symptoms increase so that the patient is confined to bed, in which condition he inclines to sleep, unless pain, distress, nausea, or conversation, keep him awake. This symptom often changes in the progress of the disease into watchfulness, or delirium. Frequently faintness, oppression at stomach, sighing, despondency of mind. A sense of internal heat sometimes manifested externally in the palms of the hands; but the surface and extremities incline to coldness. Sometimes the heat on the surface is very considerable. The fur upon the tongue is not very great at first, and the mouth is sometimes moist; it is sometimes dry, with a brown list in the centre. Pulse usually from eighty to one hundred or one hundred and twenty in a minute, small and variable. Debility of muscular motion, and the patient clings to his bed.

These symptoms are designed to characterize the access of the disease for the few first days. Many more might be added; they may be found in books. I can discover no difference between the disease, which has afflicted the people of this country for twenty years past, and the disease described by English writers, under the names mentioned at the head of this chapter. A very considerable number of cases have happened in this and the adjacent towns the present season. This disease prevails most frequently in August and September; but no month is free from it, especially the fore part of the cold season.

To describe all the symptoms usually attending this disorder, would be to name almost all the symptoms of fever. The subsequent symptoms depend so much on the method of treatment, that it seems not worth while to enter into a detail of them.

It will only be observed, that if the patient has a fortunate treatment, the violence of the disease is often arrested; at least it does not become more violent, and frequently in two weeks the disease passes off, in as mild and tardy manner, as it approached. But the time of its leaving the patient, depends on many circumstances; partly upon the management, and partly upon the length of time which elapses between the first approach of the symptoms, and the commencement of the method of treatment, for the safest and most expeditious cure. From considerable attention to this subject, my conclusion is something like this; that in general, if a proper method of cure is adopted on the first day of the attack, the disease may be expected to give way in the course of the first week; if not until the second day, the disease can seldom be eliminated from the system, until in the course of the second week; and so on for the first four days; as many days as are omitted commonly requiring as many weeks as days of omission; with this difference, that the longer the delay, the more unmanageable and also dangerous the disease becomes.

But to return more particularly to the symptoms. If the disease is not arrested in its violence, and more especially if it is aggravated by improper management, a formidable and alarming set of symptoms arise, partaking more especially of that grade of disease called typhus gravior. These symptoms are generally progressive.

A very quick pulse, from one hundred to one hundred and thirty; black fur on the tongue; furred teeth; trembling of the body generally, manifested by quickness of speech and subsultus tendinum; dilated pupils; petechiæ on the skin; small ulcerations externally or gangrene; cold sweats; diarrhœa; discharges of blood, which most commonly happen by stool; false vision; delirium, and a desire to be gone; or stupor, with insensibility; hiccup, &c. With these symptoms, the disease is very unmanageable, and commonly terminates unfortunately. Bleeding at the nose and by stools, should be considered critical, and not interrupted. If they happen before the disease is greatly aggravated, and are not followed by tonics and stimulants, the patient will commonly recover.

The period of termination of the disease, in health or death, is very uncertain; most commonly, between the third and fourth week. Sometimes fevers, that are *said* to be typhus, terminate the first week; sometimes not until the sixteenth week. I knew a case of an old physician and his wife, who were sick at the same time with typhus fever, and treated upon a moderately stimulating plan; he was sick for sixteen weeks, and died; she was sick twenty weeks, and got well. I have seen a great number of those cases, which are not of the most formidable kind at first, continued under a mild tonic and stimulant method, to eighty or an hundred days. If the patient recovered, it was oftentimes only partially, and often relapsed into some chronic illness.

SECTION III.

Treatment.

However much theory may be despised by some, it is nevertheless indispensable in the practice of physic. It supposes a right knowledge of a subject. It is not, therefore, merely "to think" but to think rightly. Wrong opinions, or what is the same, false theory, in human jurisprudence, in religion, and in medicine, have led the way to countless miseries. Speculative theory is nothing but a system of guessing. It is necessary, therefore, that the first principles of any art be founded upon fixed data, upon immoveable bases, and well proved by facts and observation, which can be relied on in a time of perplexity and danger. It will appear obvious, that a good stock of correct information is of much utility in any science, and it is suspected that those who deny its utility are destitute of true knowledge, or have been deceived by false theory. A correct theory of diseases cannot be obtained by reading only. As the foundation pillars of a building are to the superstructure, so is reading to the superior acquirements of observation and discriminative judgment. A combination of all these is necessary to the acquirement of a correct knowledge of the science of medicine.

Some having an opinion, that nature, as it is called, or the *vis medicatrix naturæ*, must be supported and helped in all her operations, have seemed to be over careful to administer such means, as give energy for a time, in almost all febrile diseases. It seems as though such had forgotten, or never knew, that nature is most apt to

outdo herself, and fail from her own excessive operations. Instead of the use of stimuli, which affects the irritability of the system, and actually increases the morbid or responding action, the primary fault should be searched out and removed. This being accomplished, excessive and morbid excitement will be lessened, the severity of disease removed, and health restored.

In the instance of the disease before us, on account of symptoms of apparent debility, or in a more particular view of the subject, on account of febrile symptoms being upon a low scale, compared with other febrile diseases, a general impression has seemed to prevail, that the tone of the system should be raised in some measure upon an equality with the febrile action in other diseases. When stimulants internally are exhibited for this purpose, the system is greatly liable to suffer from the two-fold power of the responding force of the system, and the additional force of the cordial or stimulating medicines. The morbid impressions are strongly fixed in the usual course of the disease, but rather mild, compared with many other diseases; the responding actions, constituting fever, are dilatory in proportion. But this should always be kept in mind, that as the disease is slow in operation, it will be slow in its termination, and require as great a quantity of vitality or excitability in the system to carry the patient safely through it, as if the term of the disease were shorter. Now it must be understood, that vital energy is not to be preserved by a great quantity of stimuli; but it is rather exhausted thereby. The truth of this remark must be apparent to every one, who has, in the most superficial manner, observed the languor that follows fatigue, or debauchery, or any excessive stimulant operation in health.

The same parity of reasoning may be applied, and with greater force, where the system is labouring under the impressions of disease, which produce a stimulating effect upon the system. The action is above the point of mediocrity, or that which is natural and healthy, and cannot be sustained for a considerable length of time, without danger of exhausting the excitability of the system, and thereby inducing a state of indirect debility and eternal rest. The danger, connected with this state of disease from a slow and permanent cause, is as great as that from a violent and permanent cause; with this difference, that one arrives at the point of exhaustion of vitality in three days, whilst the other does not until perhaps three weeks; provided the morbid derangement is not removed.

If these introductory remarks are just, the conclusion follows, that those medicines, which increase arterial action in the system, called stimulants or excitants, are nearly as preposterous in fevers of a slow character, as in those of a more rapid progress; and all the difference consists in this, that the injury in the one is not so conspicuous and immediately hurtful as in the other. "*Behold the end,*" should continue to be the motto of every physician. Excitability should be carefully preserved, and not lavished away by the use of unnecessary stimulants without answering any good purpose. These eventually tend to bring on that state of irrecoverable debility, which is so much dreaded, and to prevent which, false theory has inculcated their exhibition.

In diseases, having a violent access and rapid termination, physicians have exculpated themselves, and in some measure justly, from the charge of ignorance, on account of the want of time. In the present instance, this will

not do, for the disease is sometimes protracted to such a length of time, that the reiterated visits become irksome to the patient, and not void of chagrin to the physician. It seems advisable, that we either acknowledge our ignorance, or prove our skill in removing the disease in a reasonable time, according to the circumstances of the case. In a recent case, and where circumstances are favourable, with honest and faithful nurses, the trial may fairly be made. In cases of some standing, and where right measures have been neglected and wrong measures substituted, it will be difficult to effect a removal of this disease in any given time. All that can be done, is to moderate the state of violence and greatest danger, and wait a hopeful termination.

The first applications of remedies often determine the violence and duration of the disease. Nothing can be of greater consequence, than to measure the degree of diseased state in the beginning, and to adopt remedies to meet it. No writer, that I have ever seen, has given directions with any confidence of success, to be pursued in the latter stages of fever, when the action of the heart and arteries are failing in force and increasing in frequency, and whilst the primary cause of the disease is still not removed. The case cannot now be controlled, nor hardly regulated. If stimulants and cordials are given, their use, for a short time, may be flattering, the pulse may grow slower and more full, and the patient be relieved from despondency; but their effects are evanescent as the evening twilight, which soon vanishes into perfect darkness. After a few repetitions, vitality fails no more to be restored. If depletion is practised at this time, nothing is gained, for the system has suffered

a real loss of vitality instead of being oppressed; energy cannot be expanded, because irritability is exhausted.

Hence it is of the greatest moment to be careful not to add the stimuli of medicaments to the stimulating effects of the disease, even should adventitious circumstances seem to require them. The latter stage of fever can commonly be well enough managed, when stimuli have been avoided in the preceding course of it. When right measures have been used, and wrong measures avoided, the latter stages of fever are very manageable; and if the physician has not the gratification of seeing his patient cured, so soon as he might choose, he will have the superlative pleasure of seeing him restored in due time.

We have hitherto been speaking of negative practice; the subject is copious; it is time to turn our attention to a consideration of those remedies, which just physiological principles and attentive observation shall warrant.

After what has been advanced in the previous chapters, and suggested in this, the treatment will be short. It will in the first place be observed, that there are not so many fevers and different kinds of management as some have inculcated. The general treatment of fever is very similar; but much variety is necessary in adapting remedies to suit the degree of morbid excitement, and the personal circumstances of the patient. The hurtful causes are slow in operation, and consequently febrile excitement is moderate, compared with other fevers; but the assertion before made will be repeated, that the arterial action is above the healthy standard, and must be reduced. It is of no consequence for others to say, "that blood-letting is not to be employed in simple typhus," when it has been employed so

repeatedly and for a series of years to the present time, and with the most decided benefit. It has been my common practice to bleed on the first day of the attack, or second, or third; indeed at any time of the disease, that the symptoms may demand it. In cases, that have appeared to be overcome, and again assume any degree of violence, I have bled perhaps on all the days from the first to the twenty-fifth; and if the bleedings are timely and adequate to the exigences of the case, the disease will, almost certainly, be overcome, in connection with other appropriate treatment. Some cases of mild aspect may do without bleeding; others with one, whilst others need three or four bleedings, in the course perhaps of ten or twenty days.

Whilst bleedings are denied the suffering patient, some have been relieved in a hazardous manner, as was lately reported by a professor in a lecture room, concerning a man in a delirium with typhus fever, who cut his own throat in such a manner as to bleed freely, which proved not mortal, but he immediately recovered.

Without taking the trouble of making tedious quotations from authors, two facts will be stated of importance in the present argument; one is, that visceral inflammation is often present in typhus fevers; the other is, that we are not always admonished of the presence of this inflammation by pain; and it is *said* we are not possessed of any diagnostic symptom to detect it. It will however be suggested, that the quick pulse is demonstrative of its existence; and further, that the after bleedings, showing a buff, are also characteristic.

There is no remedy so suitable to relieve these congestions and inflammations in the head and viscera

of the thorax and abdomen, as bleeding. Emetics and cathartics have their use, and, in some instances, are sufficient alone; but a serious case attended with stupor, even if pain is absent, should not be risked without it. In the many hundred instances of the use of this remedy, in the present disease, not a single case has occurred to me, where it has appeared detrimental; and it is a very rare occurrence for a case to go wrong, under the proposed management. Intestinal hemorrhages are prevented by adequate bleeding. It is an unfortunate circumstance, that those cases, which might be relieved by this outlet, are from false theory usually followed by strong stimulants and tonics. In this case, what nature has restored, art has destroyed.

The treatment is very simple in this disease; when so managed as to avoid the formidable appearances, it assumes in the latter stages of severe cases. The subsultus tendinum is oftner from wrong management, particularly opium, than from any thing necessarily connected with the disease. Diarrhœa should be treated more commonly with physic, than with opium and astringents. If the patient should be very faint and low, wine should be given in small quantities, as occasion may require, but seldom in the first stage of the disease.

All that has been observed previously, relative to the application of external warmth, will apply in this disease. This should not be applied in excess, at any one time, but moderately at all times, except external heat and delirium are present. If the foregoing observations are well attended to, external heat and delirium will seldom be very alarming. External warmth and perspira-

tion should be assiduously attended to, but moderate in proportion, as the disease is wont to be dilatory. The patient should be kept warm more by external means, than internal stimuli, unless they are of the most diffusible kind. Custom has given to opium the character of a diffusible stimulus, whereas it is one of the most permanent in the materia medica.

Moderate emetics should be frequently employed; perhaps every other evening, or according to circumstances. If the patient should be oppressed with sickness at the stomach, or collection of viscid phlegm in the trachea, emetics may be used every evening. They should not have more than one or two operations.

Cathartics should frequently be interposed; generally of the moderate kind. In the first stages of the disease, calomel may be used for this purpose.

The use of bleeding, emetics, and cathartics, should be apportioned to the circumstances of the case; never to exhaust the patient too greatly, yet they should be sufficient to overcome, along with external warmth, and with perspiration, the torpor of the surface and the internal congestions and inflammation.

After febrile action is confirmed in the system, by some continuance, it seems to be the case, that it is necessary for the system to become reduced to a certain point of lowness and impoverishment, before morbid irritability, or fever, ceases. If the state of disease is of a moderate kind, it continues, in its usual course, until the system becomes exhausted in length of time, by a waste of stimulant properties in the body, when disease ceases, and health is restored, attended with much leanness. If morbid irritability is reduced by proper reme-

dies, according to the condition of the patient, much length of time may be saved, much plumpness of the body, and also much safety ensured.

It becomes necessary to use, occasionally, various aperient and laxative medicines, in the course of the disease, and at intervals, when the patient is not under the operation of those medicines, which disturb the stomach. Of these, mention has been made in former chapters in part; sulphate of potash, nitrate of potash, cream of tartar, magnesia, soda, sulphur, &c. may be alternately used. Any of the saline substances may be made into a jalap. To quiet the restlessness and erethism, attending paroxysms of fever, something like the following may be tried. Take camphor, one drachm, rubbed in a mortar with sugar, and a few drops of spirit; after which, add four ounces each, of vinegar and water; this may be taken in about twenty-four hours.

If a laxative febrifuge should be required, the following will be very useful. Take an ounce of sulphate of soda; let it be dissolved in a wine quart of warm water; drop into this about eighty drops of strong nitric acid, or enough moderately to acidulate it; then add an ounce or two of loaf sugar, as is most agreeable to the patient. This may be taken often, in the quantity of a wine glass, until it proves laxative, or if this is not required, then more moderately. Many other alteratives might be mentioned, but the stomach should not be crowded with medicine; it needs refreshing food and drink.

If the symptoms should become mild after moderate depletion, at any time in the course of the disease, but little will need be done by way of medicine for several days, in many cases. Careful attention will be necessa-

ry on the part of the attendants in every circumstance, relative to their charge. In this interval, the patient obtains a little ease from the disagreeable operation of medicine, and, perhaps, receives some refreshment, suited to his condition; and, if the fever has any exacerbation, he will more cheerfully submit to the use of remedies.

In certain very low conditions, a little wine as mentioned before, may be necessary; also decoction of the bark; elixir vitriol; and Fowler's mineral solution. Constantly, in the whole course of the disease, the patient may take mild and nutritious food, in small quantities, as is agreeable, and generally in a liquid form, as broths, gruel, coffee, &c. It is not meant to be understood here, that such quantities should be taken, as to prove very stimulant, but sufficient to prevent faintness; lowness and faintness are much better avoided in this manner, than by stimulating cordials. If at any time, the food should oppress the stomach, it can be removed by gentle physic. Drinks, in the fore part of the disease, should be warm; and also at every stage, unless the patient has a strong desire for cold drink.

In some cases, external heat will be pretty abundant, and connected with pain in the head, even after bleeding has been carried to a considerable extent. In such cases, wetting the head in cold water has sometimes given sudden relief. If the heat should be very considerable externally, which happens rarely, when the proposed method is followed, cold water, externally, may be tried; see Chap. v. Sect 2. But in the many instances, in which I have seen it tried, it has appeared to be useful, only in a very few cases; when used early in the

disease, it has often manifestly been hurtful. Blistering is often useful, but not more than one at a time should be applied.

When slow or typhus fever is treated with tonics and stimulants, it is very generally lengthened to a considerable extent. But this is not all; it is common for people to say, they have never felt well as formerly after having the disease. Although they have escaped some incurable disease, as a sequel of fever, yet it is often the fact, that imperfect health is their constant attendant. More serious consequences remain to be told. I have seen a very considerable number of cases, attended with contraction of the muscles and tendons; the legs cannot be extended, nor the body raised to the perpendicular; decrepitude is depicted on the whole body. A diligent use of the warm bath, mild cathartics, emollient ointments, and moderate extension may restore these. Again,

A long catalogue of maladies will be passed over, to mention only wasting consumptions and bloating dropsies. These are very often the sequel of half cured fevers, and the trophies of preposterous practice. No axiom in medicine is better established, than the assertion, that these diseases may be prevented by a judicious treatment of the primary affection.

When this disease is treated upon the general principles related, it is commonly disarmed of its violence, and becomes as harmless, as moderate cases of influenza. The writer is well aware of the preconceived opinions, and the weight of authorities, in favour of the use of calomel, wine, and opium, in large and small quantities, &c.; nothing, but a thorough and well grounded conviction of their hurtful tendency, could have induced him

to oppose their use in a publick manner, and expose himself to the disapprobation of some of the more candid, and to the obloquy of some of the more censorious part of the community. These conclusions have not been premature; nor till after the most effectual trial by himself, and attention to the practice of others, has he been convinced, that the mild access of typhus is often converted by stimulants and tonics into a formidable, treacherous, and unmanageable disease.

It was proposed to have made some particular observations on influenza and intermitting fever; but want of room precludes them. After the occasional previous remarks, it becomes less necessary, as it respects influenza. Mr. Senac, is recommended as the best *practical* writer upon intermitting fevers.

REMARKS, &c.

"In all attempts to discover the causes and cures of diseases, which have been deemed incurable, a physician will do nothing effectual, until he acquire a perfect indifference to his own interest and fame."

RUSH.

ON FEBRIS PULMONALIS, OR PHTHISIS PULMONALIS,

OR

PULMONARY CONSUMPTION.

SHOULD a superficial reader look at these remarks on account of the novelty of the title, or name of the disease, he is politely requested, either to lay down the book, or begin, and read it through.

The symptoms of this disease, from its frequent occurrence, are too well known to every one to need description. The most important will, occasionally, be alluded to in the course of this investigation.

From one fourth to one third of adult persons, in temperate latitudes, die of this disease; except in severe epidemic seasons. In the united kingdom of Great Britain, it is said, fifty thousand are annually swept away by it; and, in the northern states of America, the proportion has been but little less! If to this be added the deaths of those by other states of pneumonic inflamma-

tion, as pleurisy, influenza, &c. the number will be greatly increased.

The subject before us requires a volume; but necessity obliges our remarks to be compressed in narrow limits. They will consist of a few propositions, with some illustrations.

1st. It is an endemic fever, affecting the inhabitants, almost exclusively, in certain districts and countries.

It affects countries adjacent to the sea, more than inland situations. But this admits of some exceptions. Lincolnshire in England is rarely affected with this disease, although it is so frequent in that country, and this lies contiguous to the sea. The inland parts of Ireland and Holland are but rarely subject to the disease, although it is very frequent in these states.

In this country, it will be suggested, that consumptions are most frequent near the sea coast, and acute pneumonic inflammation more frequent in the interior. But the difference is not supposed to be great. The truth of this observation may be found in bills of mortality, and the well known fact, that the late pulmonic fever was more severe in the interior than on the sea coast. Certain parishes and districts, in the same county or state, produce a greater number of phthisical cases than others. Dr. Forsyth observes, (Med. Reposit. for 1809, p. 353) on the diseases of the eastern part of Ohio, "The phthisis pulmonalis is, if possible, more common than on the sea coast." He imputes it to local influences. Territories, situated under the torrid and frigid zones, are more exempt from the disease; in some of these places, it is almost unknown, but others are not wholly exempt. These facts are presumptive

proof, that particular local situations afford a predisposing influence. In like manner, some situations predispose to intermitting, some to yellow fever, &c. The external circumstances, inducing predisposition, are supposed to be certain elementary principles in the atmosphere, of local, but of pretty extensive diffusion, inducing a peculiar state of susceptibility in the lungs, with slow external impression. The personal circumstances, giving an aptitude to this peculiar diseased action, are supposed to be, a greater degree of irritability of fibre, than is common to the generality of adult persons. This will be further considered in the next proposition.

It will be suggested, that heat and cold, drought and moisture, should be considered principally as exciting causes; they do not very commonly produce the disease, except in the predisposed. But suppose a person, predisposed by any circumstances inducing an irritability and mobility of constitution, to be placed in a variable and predisposing atmosphere, he will be in danger of receiving a permanent impression, and suffering from such exposure. A moist and cold atmosphere is, therefore, liable to excite the disease; as also sudden changes of weather in cold climates. Small impressions, on the surface of the body, inducing but slight changes, called colds, also impressions more slight, and scarcely noticed at first, lay the foundation of this formidable disease. Hence arises the necessity of all persons, more especially invalids, dressing warm, and avoiding cold, damp, and foggy air; also variable weather with cold winds. And likewise, if they gain an impression in the form of a cold or slight cough, to use diligence to remove it before changes of a more serious aspect occur. A cold is a lit-

tle fever; it may be easily cured, or it may readily be transformed, in certain habits, into a consumption. It is curious to notice certain people, in bed when they happen to have less bed covering, or happen to feel a change of weather, afflicted with a frequent cough. Let such have an additional covering, and the cough immediately ceases. This goes to prove the theory of fever, and shows the importance of the functions of the skin in the economy of the system.

Some seasons of the year afford a greater number of consumptions than others. And also some periods of time produce a greater proportion than others. Since the appearance of the late epidemics, for about five years past, consumptions of slow origin have been less frequent in this vicinity than before.* The greatest proportion have been such as are the sequel of pneumonia, and these have not been so frequent as from former cases of sporadic pneumonia. These and many other circumstances that might be mentioned, go to show, that this disease depends more upon elementary, than personal predisposition.

2d. It affects people of the most exquisite irritability of fibre.

This proposition may admit of many exceptions, so far as we are able to discover a state of irritability in the general habit. It will, however, hold good as a general rule; and in the exceptions that might be made, it will be suggested, that although the particular person might not so clearly discover a general mobility of constitution,

* The reader is requested to see Chap. II. under the year 1814, relative to an opposite opinion of the frequency of this disease, by Dr. Littlefield, in Bennington county.

he may possess a peculiar and local irritability in the lungs. This is far more probable than the common opinion, that a deformed chest gives a liability; for it is a matter of notoriety, that many people, having very flat chests, high shoulders, and long necks, do not have the disease; and it can hardly be said, they are more subject than others to it; otherwise than as this particular form is presumptive, that the person is of a slender or delicate temperament, and, consequently, possesses a greater degree of mobility and irritability of fibre. Many persons, having great deformity in the chest, from rickets and accidental injuries, are not more frequently seized with this disease than others. The most decided marks of this kind of delicate irritability, are a fine smooth skin, a fair ruddy complexion, leanness of body, a great flow of spirits, acuteness of understanding, and an amiable disposition. It is said to affect more of the female than of the male sex. Although the subjects of this temperament may be most liable to the disease, it may and does affect all temperaments and complexions.

It appears most at an age when it is presumable that the system suffers most from sanguineous plethora, giving a high degree of irritability. From the age of sixteen to forty, is the period when the greatest number by far, are affected with this disease. Until the age of about sixteen, superabundant increment is applied to the growth of the body; after the age of about forty, the sanguineous incrementive powers become deficient. This is conformable to the well acknowledged fact, that pregnancy even suspends the progress of the disease, when the increment is applied to the growth of the child, and local irritability is translated to another organ. As

soon as the internal economy is changed, the disease assumes its former ravages. Conditions of hard labour and scanty fare, do not produce so many consumptions, as indolence and luxury. Upon the same principle, much riding and milk diet, or low regimen, have been found useful oftentimes in the cure and prevention.

A further argument may be added here, as proof that many people, who have had incipient phthisis, have been relieved, and others whose disease had made great progress, have been cured, by means that diminish irritability, by a subduction of stimuli.

Salivation, by giving a severe impression in the throat with a discharge of saliva, appears to have, oftentimes, an effect analogous to pregnancy; and most commonly after salivation ceases, the disease returns with violence proportioned to the delay. The great secret of the methodus medendi seems to be, to translate diseased action from the lungs, and sustain it permanently, without injury to any other organ, until the primary derangements are removed.

3d. It is a primary and idiopathic fever, having a locality in the lungs.

The tardiness of the disease is no argument against its pyrexial character. The plague is called a fever; so is typhus; the former kills, sometimes, in a few hours; the latter sometimes not until the end of an hundred days. There is as much propriety in considering this an original or primary fever, as there is in calling the most rapid case of pneumonia such. The symptoms are exactly alike, making allowance for the rapidity of the one, and the tardiness of the other.

It is called hectic, which only means habitual. The

name is well enough; for it follows the afflicted through all his time, and all his travels, from the first day of his seizure to his tomb, if not wrested from him by some friendly hand. Nothing but superficial observation, and submission to the errours of others, has induced any one not to call the fever hectic, until pus is expectorated. It is true some change happens in the symptoms, at the time the patient raises purulent matter, but they are only such as mark a higher grade of disease, with ulcerated surfaces exposed to the air. From the weakened faltering state of the patient, and aggravation of disease, remissions become more apparent, and the accession of paroxysms more distinctly marked. A difference in the fever attending pneumonia may easily be discovered between the first attack and the after progress. In the pulmonic fever in the winter of 1812—13, patients would often have the deep circumscribed flush in the cheeks, within seven days from the first attack, and exactly resembling the most decided hectic; whilst at the same time, they were doing well, and the fever vanishing, with a free expectoration of muco-purulent matter.

The existence of fever, in the attack of consumption, is inferred from the symptoms, which are almost constantly a heat in the palms of the hands, dryness of the skin, a flushing sometimes in the cheeks, more or less acute pain in the region of the thorax, attended frequently with hoarseness and shortness of breath, occasional chilly sensations, and particularly a quick pulse. These symptoms sufficiently evince the existence of fever, and ought so to be called instead of debility, which is only a symptom. The fever is constant every day, and may well be called hectic or habitual. As a conclusive argu-

ment, that purulency is not necessary to constitute a hectic fever, it will be noticed, that some cases have proved fatal, and after a long time, without any purulent expectoration; or even a discharge of mucus, except in very small quantity.

There is no propriety in saying, the present disease is caused by debility. We may as well say, all diseases are caused by debility; and agree to use this undefined and pliant word as a garment, with a woof of charity, to cover all our ignorance. The lowest grade of direct weakness, free from fever, is not oftener followed by this disease, than the highest state of vigour compatible with health. In cases of the greatest exhaustion or inaction, if the patient survives the first shock, he is almost sure to recover perfect health, with prudent management. Those cases of chronic disease, following fever, originate not from debility, but from the fever being only partially cured, and oftentimes from a translation of diseased action to some other organ.

We hear of rheumatism, gout, eruptions, typhus fevers, &c. inducing debility, and consequently oftentimes consumptions. If these primary diseases had been eliminated from the system, by proper remedies, although the patient had been very low and debilitated, he would not be followed by consumption; and, I am warranted in saying, by no other formidable disease. I am free to pledge myself for the truth of this remark, in general terms. The obscure pretence of debility, causing so many diseases, ought to be exposed, and no longer permitted to be the city of refuge for ignorance and errour. Debility exists, as a symptom, in a great proportion of diseases, and we ought to look a little further back in

the chain of cause and effect, and attempt to discover what induces this debility, and there look for the cause not only of debility, but of many other of the symptoms of this unrelenting disease.

The suggestions of those who consider the fever in this disease symptomatic, are ill grounded. This is inferred partly from what has been said; and partly from this, that the local affection in the lungs and the general fever are synchronous; the analogy with all other febrile diseases, confirms this. If there should happen to be any material defect in the lungs, or even recent wound, and the system free from fever or a general morbid action, but little inconvenience will ensue; but suppose the reverse; let a general inflammatory diathesis be present, and consumption will be likely to follow. In this manner, hemoptysis may be harmless, if no inflammatory diathesis be present, nor any other derangement in the lungs, except the simple lesion, producing the discharge of blood.

From the circumstances, that the disease affects mostly the inhabitants of certain districts; that it affects people of a certain age and temperament, having a predisposition; that the fever and affection of the lungs are synchronous; that they progress together, and terminate together; and that the symptoms are, in common, with other fevers, we are induced to consider this a general fever having a locality in the lungs; or chronic *pulmonary fever.*

4th. The assigned causes of consumptions are not the real ones.

The causes of consumptions have, by modern writers, been considered to be five: viz. hemoptysis or spitting of blood; pneumonia, ending in suppuration; catarrh;

asthma; tubercles. Each of these require a short consideration.

a. Hemoptysis. This, or other discharge of blood from the lungs by wound, is harmless, disconnected with a febrile diathesis. This is agreeable to observation and the opinion of the best practitioners. If inflammation should supervene, it may be suppressed, and the part heal and not be followed by consumption. It is supposed that in all cases of spitting blood, connected with or followed by consumption, that the disease has made some advance before this appears, and therefore should be considered only a symptom of the disease; and sometimes a fortunate one, provided enough is lost to break the inflammatory diathesis, which is rare. Sometimes the congestions of blood in the lungs afford the spitting at an early period; at other times not until the disease is far advanced. On account of the lungs being formed of a great proportion of cellular texture of less sensibility, and of a yielding fabric, derangements in this organ, when slowly formed, are not soon noticed by the patient. Hemoptysis may be one of the first obvious symptoms, though following primary derangements.

Spitting of blood in consumption is from the same cause, and from the same condition of the lungs, that it is in pneumonia. They both appear after some change is made in the lungs by the disease. Pain is slight even in pneumonia, unless the investing membranes are affected; much less in phthisis. In this condition, blood is spit oftentimes before the patient is warned of his case by pain; but a quick pulse and other signs of general disease may be observed.

b. Pneumonia ending in suppuration. This is nothing more than a protracted case of the same disease. The

one is an acute phthisis, the other a chronic or protracted phthisis. It might be called *febris pulmonalis* in the suppurative stage. If the patient had died before suppuration, it might be called pneumonia, or febris pulmonalis without suppuration. No more propriety exists for calling pneumonic ulceration by some other name, and considering it a different disease, than there would be in calling an external ulcer, which opened in ten days by another name, after it had existed an hundred days.

c. Catarrh; or what is perhaps the same, influenza. This has some affinity to pneumonia, but of a less violent character, and affecting, more especially, the fauces and trachea. The inflammation may reach into the remotest air cells of the lungs, and if protracted, occasion a purulent discharge from the inflamed membranes. This disease continuing, the abrasions consume the membranes, and deep ulcerations are sometimes formed. This is consumption or protracted catarrh. The case may prove fatal without a lesion of the membranes.

d. Asthma. This is not usually attended with fever. If hectic fever attacks an asthmatic person, the habitual irritable state of the lungs renders it more difficult, but does not cause it.

e. Tubercles. These are said to be the most frequent cause of phthisis. They very commonly attend the disease; but it will be suggested, that they are oftner the effect of diseased action of the vessels of the lungs, than the cause of the disease. In the various dissections, which have fallen under my observation of persons, dying of other diseases, these tumors are not found of the same kind with those found in the case of dissections of phthisis; neither so frequently met with

as might be supposed, if they existed a long time before the attack of the disease. It is rare to find any tumors in such subjects; when they do appear they are of a larger size, and not affected with inflammation. These may have some resemblance to scrofula, and are supposed innocent, as they are few in number and not inflamed. The tubercles in patients with lingering phthisis are very numerous and small; they rarely appear in violent cases, approaching to the nature of pneumonia, but in the most protracted. The convoluted glands of the lungs are supposed to be easily affected by a slight and peculiar inflammation soon after the attack of the disease, and tubercles are suddenly formed, and which render the disease more obstinate. In severe cases of pneumonia the inflammation occupies a considerable space, including the blood vessels, &c. in one common mass of inflammation, which soon suppurates and is expectorated; or if the air cells above should adhere by the inflammation, the pus will collect in a vomica.

Scrofula is a very rare disease in this country; but phthisis pulmonalis a very frequent disease, and very often of that species, attended with tubercles. Their formation is supposed to be after the manner of the swelling of lymphatic glands in the groin, or armpit, or neck from a slight inflammation below. These are suddenly formed and suddenly disappear; so it will be suggested, the tubercles in the lungs will disappear, if the primary disease, or fever is seasonably removed. This may be hard to prove; but analogy warrants it; also many cases, where the existence of tubercles has been strongly suspected, have been cured. This kind of tubercles is more likely to inflame and suppurate than the

scrofulous, and are connected with, and in a great measure dependent upon fever, for their continuance and progress. Scrofula, on the other hand, is rarely attended with fever; and the swellings, when ulcerated are free from inflammation. So much is this the case, that the most of the remedies recommended for their healing, consist in such, as produce inflammation in the part, which is thought necessary to their healing. And also as respects the general treatment; bark, iron, and other stimulants are recommended. If these do no good, they are harmless. This is more than can be said of phthisis, for, where stimulants and tonics are used in this disease, the patient rarely escapes with impunity, or the physician without disappointment.

Scrofula is so rare a disease in this country, that I am verily of opinion, that not one case in thirty of phthisis, which I have seen, showed any signs of scrofula externally by tumors, neither had the patients ever been troubled with it in the course of their lives. Dr. Cullen, and others, admit, that tubercles may be formed by other causes than scrofula; particularly from the fomes of small pox and measles; this is acknowledged from the appearance in dissections. In order to support the favourite theory of tubercles being the cause of the disease, it is said, "these diseases afford a matter, which in the first place produce tubercles." It is surprising sometimes, how near some people come to the truth, and yet miss it. It is granted, that tubercles are early formed in phthisis, not only from the above diseases, but from many others imperfectly cured, as typhus, influenza, &c. not from any specific acrimony or fomes, but as a consequence of a particular kind or degree of inflammatory

action, in the vascular and glandular texture of the lungs. Tubercles show very nearly the same appearance, from whatever causes produced.

A further circumstance, showing that tubercles are not of a scrofulous character, may be inferred from the matter raised from the lungs in phthisis; this is very strictly a purulent matter, in the advanced stages with a mixture of mucus; in scrofulous sores, the discharge is more strictly mucous, or rather gelatinous, or watery. Although both phthisis and scrofula appear most frequently in the temperate latitudes, and similar temperaments, yet it is well known, that scrofula is a disease of nonage and laxity, whilst phthisis affects the sanguine and sthenic age of manhood.

And further, scrofula is not connected with fever until very late in the disease, and then is not violent. On the other hand, *phthisis is accompanied with fever from the beginning.*

By this time, it might be expected, that any one, who finds so many defects in the assigned causes of phthisis pulmonalis, should give satisfactory proofs of the real causes. The causes of fever still continue to be a great desideratum amongst the faculty, even in such diseases as attack suddenly and are rapid in their course. To ascertain correctly the remote and primary causes of a disease, of the insidious approach and procrastinated termination of the present, may be considered more difficult.

The views of the writer have, undoubtedly, been anticipated before now. The following proposition will be offered, as the most satisfactory opinion he has been able to form.

5th. It has an elementary origin, in some measure, like other fevers of a general character and local tendency. This is inferred—1st. From its analogy to pulmonic epidemics; 2d. From its affecting subjects of the same temperament; 3d. From its appearing principally in certain countries and districts; 4th. From its being attended with the precursory symptoms of fever; 5th. From its being mitigated or cured by the same remedies as other elementary diseases; 6th. From its being excited by the same causes; 7th. From other fevers changing into this; 8th. From some periods of time affording a greater number of cases than others.

The tardy progress of the disease is no objection. The causes are supposed to be slight and permanent; and in many respects it resembles typhus. This last often affects the lungs very considerably, and when only half cured, often terminates in phthisis. Chronic eruptions being translated from the surface to the lungs, often fix the locality there, when connected with an inflammatory diathesis.

Much has been said about other diseases causing the consumption. The solution of the fact seems to be this; Diseases are apt to change their locality, in a forming state, and also when partly cured, more readily than in their strongest state; the locality, in these conditions, changes from place to place; and in a subject possessing any particular irritability of the lungs, it may settle there, and with or without tubercles being formed, become difficult to cure.

In cases of slow and imperceptible approach, the exciting causes are supposed to be such, as make a slight and partial derangement in the minutest vessels of the

system. See Chap. III. Sect. 6. Also Chap. V. latter part of Sect. 3.

The disease appearing chiefly in certain districts, in the same latitude, gives a strong presumption, that some deleterious elementary principle is necessary to its production. Its appearing mostly in the middle latitudes, is presumptive, that the extreme and sudden changes of temperature, from heat to cold, and the reverse, have a controlling influence.

As all exciting causes of fever have a greater influence in debilitated habits, so this disease finds a more ready access to such habits of an irritable fibre. The numerous circumstances, which act upon the body, producing more or less derangement in the economy of the system, cannot be repeated here; they have been referred to, as the common exciting causes of fever. It will only be noticed, that the concurrent operation of cold is necessary to give permanency to the derangement in the minute vessels.

It will be suggested, that cold and moisture act only as exciting causes. It is not very common for them to produce it, but in the predisposed. Such persons as have a natural or acquired condition of pulmonic susceptibility, are liable to have slight pulmonic inflammation, upon the slightest application of exciting causes. The derangement in the circulatory system is slight, but permanent. It gains permanency by continuance. As typhus fever is to the shortest and most violent fever, so is febris pulmonalis to typhus. See definition of fever, Chap. IV. Sect. 1.

The local affection is an adventitious circumstance, or depends upon some personality of the patient, either na-

tural from ancestors, or acquired from climacteric influences; most commonly the latter. The local affection does not always fall upon the lungs, in cases of protracted or chronic fever; it may fall upon the liver, under certain climacteric influences; or it may fall upon the mesentery, producing another kind of consumption; and so of many other diseases of slow progression. These may all be attended with fever; and although the local affection merits particular consideration, the circumstance of fever, or general diseased action, merits principal regard in the treatment.

Extraneous bodies accidentally lodged in the bronchial vessels, such as beans, splinters of wood, &c. as also calcareous concretions in the coats of the air vessels, sometimes induce inflammation in the lungs and a distillation of purulent matter, with wasting, &c. If these can be removed the disease ceases, the same as in injuries in other parts of the body. If they are not removed, sooner or later destroy the patient, as similar extraneous bodies may do in other important organs.

With respect to the primary cause, little need be offered, after the previous suggestions. The derangement in the minute vessels is small; like other fevers, secondary consequences follow; the whole system becomes diseased, with a local inflammation in the lungs of a chronic kind, attended with wasting and destruction, if not arrested.

6th. The treatment should be similar to other fevers; having regard to the permanency of the disease, the local affection, and personalities of the patient.

This disease has been called the scourge of physicians. It may be doubted whether the treatment has not been as

often the scourge of patients. Without any design, perhaps, but to do good, almost all the articles of the three natural kingdoms have been applied to find specifics; and with as little success, and as little judgment, as the alchymists pursued their experiments to find the philosopher's stone. Notwithstanding the numerous unprofitable experiments of ancient time, great improvement has been made in the treatment, by the discernment and industry of eminent men in modern times.

Empyricks, quacks, impostors, mountebanks, horse-doctors, and patentees, have imposed, upon credulous and suffering patients, their never-failing tinctures, essences, sirups, balsams, lozenges, anodynes, pulmonic detergents, nostrums, catholicons, &c. These are only named to be placed in the back ground, along with their well merited contempt, and as monuments of ignorance and duplicity.

Whilst mystery is attached to the character of any disease, the treatment is involved in uncertainty and confusion. If these pages should remove one mystical errour relating to this destructive malady, the labour and solicitude of the writer will be compensated.

7th. The progress of the disease depends upon the state of the fever.

This assertion will hold good in every stage of the disease, but is most manifest, and most proveable in the first stages. As the depravations in the lungs are synchronous with, and depend on, the derangements in the general system, as before suggested, a principal object will be to restore the primary and general derangements. This will hold good, whether the disease be a sequel of some other, or whether it should originate in the more

ordinary way, from slow, and often imperceptible derangements as a consequence of external elementary impressions.

It will be granted, that in cases of moderate accession, the cough is often the first *ostensible* symptom; but it will be suggested, that it is not really a symptom of *precedence*. The patient may deny that he is indisposed; and he will often deny that he has a cough, from the circumstance of its being so slight and habitual, that he does not notice it. In all these cases, by a strict examination, it will appear, that the patient has some quickness of pulse; some slight and transient pain; some desire, occasionally, to avoid cold air; some dryness on the skin; and a slight occasional flushing in the cheeks, with transient heat.

If the disease is the sequel of some other pyrexial disease, whose local affection is translated to the lungs, the progress of the disease will still depend upon the state of the fever. If the state of fever in the general system is removed, in either of the above conditions, the state of the lungs is of little consequence, as to the safety of the patient; but it may be of much consequence, as respects his entire recovery.

If the fever can be removed, before ulceration takes place, his cure may be complete. If not removed, until ulceration has taken place, his cure will be more or less complete, according as the ulcerations may more or less completely heal. Many live to a great age, with a defect in the lungs, giving some expectoration, with only, occasionally, a very little fever.

8th. It becomes, therefore, of the first importance to use assiduously those remedies, found by experience to be most effectual for the removal of fever.

It will be understood, that our observations on the cure of this disease, are meant to apply to the disease when formed in such a manner as to warrant the case to be phthisis pulmonalis in its incipient stage. It is supposed to be some weeks or months from the first indisposition. And here it may be observed, that at first, this disease may often be averted by simple and slight measures. It often appears in the form of a slight cold, when a little attention to remove this, will remove the primary derangements in the system, with all their troublesome consequences. It must further be understood, that the remedies of incipient phthisis are the same, with a little variation, as the principal remedies in the after or ulcerated stage, as long as any hope remains of the patient's recovery.

The principal remedies of febrile action have been treated of in the foregoing chapters, but, as applying to this peculiar state of disease, may require some further consideration.

The same great leading objects should be kept in mind, to restore the primary derangements in the system, and preserve that important organ, the lungs, from destruction. If the primary cause can be removed, as before observed, in due season, the lungs may be preserved; and the fulfilling the fore part of our indication, supersedes the latter. The most essential remedies, to fulfil the above intentions, will be mentioned in succession.

a. Warmth. It is a disease of cold and variable climates. The greatest proportion of attacks are in the cold season of the year. The patient seeks external warmth. A steady warm climate, warm clothing, and

warm apartments, are found beneficial. Strict regard should be paid to the circumstance of external warmth, and the promotion of excitement, with moderate perspiration. Occasionally, and in case of dry skin attended with frequent pain, a tepid bath may be used.

As in typhus fever, warmth should be used less severe, and more steadily, than in fevers of sudden access; so in phthisis, it should be more moderate and well persisted in, as the case is more protracted.

b. Blisters and frictions. For the same intention of increasing excitement on the surface, these should steadily be employed. A blister every third or fourth day, principally on the chest; and frictions over the whole body two or three times a day, or as the patient may bear them.

c. Venesection. This should be employed more or less extensively, according to the severity of the case and personal circumstances of the patient. It ought to be persisted in, until pain is totally removed, and quickness of pulse is very considerably reduced, in conjunction with other remedies and suitable time. The bleedings should be repeated in as quick succession, as the pain and fulness of pulse return, after the former bleeding. The oftener the bleedings are repeated, and the larger the quantity compatible with the patient's particular condition, the sooner relief may be obtained.

No regard should be paid to the buffy appearance of the blood. Bleeding is often very necessary, when this does not appear, particularly in the beginning; and afterwards, it may not be prudent to take blood until there is no appearance of buff. In some stages of fever, and in *this* fever, the buff will probably appear in the last ounce

of blood that could be drawn. After the violence of diseased action is broken by bleeding, the remaining cure should be trusted to other auxiliary remedies, with a suitable length of time for healthy adaptations to be restored.

No attention should be paid to the splenetic notions of those squeamish writers, who recommend halfway bleeding, along with other halfway measures. "A moderate bleeding," say they, "when the pulse is unusually hard, is often proper." It may as well be wholly neglected, as to be used in this manner. After the disease has become incurable, the bleedings should be moderate, merely to palliate, neither should they be very often repeated; but whilst there is hope of recovery, they should be thoroughly persisted in. The case may be hopeful, and many have recovered, by suitable remedies, after very copious expectoration has taken place. This, therefore, is not a sufficient objection to the use of this remedy. The chance of success, however, is diminished in proportion to the length of time that has elapsed before the use of proper remedies.

Debility is not so great in this disease as in some others, where bleeding will be acknowledged proper, and where it will be practised to a great extent in a few days, even by the same characters, who oppose it in this disease. The patient is daily growing weaker by his disease, and if he is only moderately bled, he is very apt to think the bleeding has weakened him. A faithful physician has burden enough to oppose gainsayers, to quiet the fears of his patient, to retain his confidence, and acquit his own responsibility. He should look beyond present embarrassments, even to the end of the case, and there hope for consolation.

The quantity and repetition of the bleedings should accord with the circumstances of the particular case. No rule can be given as to this; some cases will require, perhaps, five bleedings in as many weeks, and each bleeding sufficiently large to make a manifest change in the hardness of the pulse and severity of pain. Another case may require perhaps ten, fifteen, or twenty bleedings, in the course of six or nine months. It is not usual to go beyond this in common cases; but some very uncommon cases may require a larger extent. It is astonishing to a person, not in the habit of using this remedy in its fullest extent, to notice the suddenness that plenitude and arterial action return, after a loss of blood, and whilst disease remains. It may here be observed, that after morbid excitement has subsided, no danger may be apprehended from the loss of blood inducing a plethora. I have not noticed any such consequence during the many years in which I have been in the habit of using this remedy. After patients have recovered from this and other diseases by repeated bleedings, they no more require after bleedings to remove plethora than other people.

A specious argument is opposed by some against bloodletting in this disease, as also in many other diseases; that although it may be useful in nothern latitudes, and in the most sanguine habits, they say, that it is inadmissible in southern latitudes, and in old countries where effeminacy is more characteristic; and particularly in the more slender and debilitated habits. The character of diseases is generally more rapid in southern latitudes; and we have reason to believe, from the reports of the most expert practitioners of those countries, in other

diseases, that the safest and most effectual treatment consists in a sudden subduction of morbid irritability, which is principally effected by blood-letting. It is hardly possible to conceive why the disease under consideration should be an exception.

If it be insisted, that the northern states of America afford a less proportion of effeminate habits, than the European countries; it must be granted, that in the former, many are to be found possessing a delicacy of habit and effeminacy of constitution not surpassed by those of modern Europe.

With respect to individuals of this description, we are at liberty to offer an opinion. It will be affirmed, that subjects of this cast require blood-letting to a degree proportioned to their arterial plenitude and irritability, as much, and indeed rather more, than others of a more firm and less moveable habit. It is understood, that they may not need so many pounds of blood taken; but what they can spare requires to be taken for their relief, as necessarily as from the opposite characters. It has often appeared to me, that a greater necessity exists for this evacuation in such habits, on account of a greater degree of arterial irritability accompanying them. A florid complexion and plumpness of body, should be no criterion to determine the propriety of blood-letting; but a frequent pulse with only slight hardness, let it be ever so small, will warrant it in this disease, in any age, sex, constitution, or complexion. A slender texture, distended to a certain degree, will suffer more than a firm texture; and the consequences of diseased action are more certainly destructive, and less easily repaired. I have frequently treated cases of phthisis in these deli-

cate habits by bleeding, with advantage beyond my most sanguine expectations.

Our opinion eventually amounts to this—That if, in most cases of this disease, the action of the system can be reduced, by blood-letting and other remedies, below the point of morbid irritability, before excitability is exhausted, or the lungs too greatly injured, the patient may be restored; if otherwise, the disease may be beyond human control.

d. Emetics. These are useful auxiliaries. They excite the torpid lymphatics into action, and are useful to make a determination to the surface, and promote a diaphoresis. They are particularly useful in exciting a discharge from the bronchial lymphatics, whereby inflammation is relieved. In the incipient stages, tartarized antimony, or antimonial wine is preferred. In the after stages, with much debility and great expectoration, the sulphate of copper and ipecacuanha are preferred; one part of the former, and two of the latter. Two or four grains make a sudden, easy, and useful emetic. I have known patients take an emetic of this every evening in bed, for two months, and gain strength the whole time; and even in cases of large expectoration; whilst this would be gradually diminishing. The emetic operations should be slight, and repeated about every day, if nothing particular prevents. It may sometimes be repeated twice a day, for a short period.

e. Cathartics. These must be used but very sparingly. Occasionally, however, they become useful as assistants; when they become necessary, the mildest will be sufficient.

These are the principal remedies to make a radical

change in the system; to destroy morbid excitement, and give opportunity for healthy action to proceed with ease and regularity. As a proof that strong impressions and severe agitations are necessary to remove the primary derangement in this disease, it will only be mentioned that accidental and sudden cures have been effected by great terror; as took place at Barbadoes in a hurricane in 1780, according to Dr. Blane. Van Swieten and Smollet, according to Rush, mention cures of consumption by patients falling into streams of cold water. This also proves the theory of the disease; and the same thing has happened in other fevers. Several other remedies become useful auxiliaries in this peculiar habit of disease, which will now be named.

f. Low regimen. By this is meant a diet moderately nutritious, but void of the more stimulating materials. It is of great consequence that the patient be well supplied with agreeable food, and often repeated. Milk appears to possess more useful qualities, than any one single article. It is found by the experience of ages, that this article of food gives the most nourishment with the least febrile commotion. Patients should generally be strictly confined to it, with simple light bread. It may be prepared in any manner to suit the appetite. If the curative measures are properly persisted in, there will be no necessity of seeking for different kinds of milk, less stimulating than the milk of cows. Vegetable diet should be persisted in; consisting of the farinacea, herbs, fruits, and roots of common culture and culinary use. In some cases of very quick pulse and much irritability, simple milk alone for food, and whey for drink, should be enjoined. In certain very low

states, and also after hope of recovery is relinquished, if the patient should have a particular desire for more nourishing food, as meat, oysters, &c. he may be indulged; and if the force of disease should have been principally subdued by proper remedies, they may assist his convalescence.

The Iceland moss is considered an agreeable and proper article of diet, in the latter stages of this disease. It may be boiled in milk and water.

g. Exercise. This consists of rocking, swinging, sailing, riding on horseback or in a carriage, walking, and hard labour. Much depends on the time and manner of using these. They may be useful, or they may be hurtful. The most gentle kinds, as rocking and swinging, may be useful at any time; but the exercise should be very moderate in the beginning of the disease. I have never known riding on horseback of any use where there was any considerable fever, with quickness of pulse; or until the force of the disease had been chiefly subdued, by the principal remedies. The inculcation of this remedy, in the incipient stages, has been often attended with much injury. All exercise proves useful by exciting universal action, and a determination to the surface and extremities. The condition of this disease is such, oftentimes, in the beginning, that exercise does not increase action in the extreme parts, but produces an accumulation of circulating fluids in the internal viscera. The consequence of this often is, an increase of shortness of breath, of pain, and of quickness of pulse. In all these cases, exercise should be prohibited as in other fevers. After the proper curative means have been used a sufficient length of time, moderate exercise may give

relief. It should afterwards be steadily persisted in; for the effects of it last but a little while. In order, therefore, to receive permanent benefit, it should be almost constantly employed, even to the point of fatigue.

In cases of long standing with but little fever, benefit has sometimes been gained by hard labour, connected with low diet. It is supposed, that these two last diminish plenitude and arterial irritability, whilst exercise keeps up an equal circulation. It is therefore of much consequence, that exercise be well chosen, and rightly timed; and without attention to these, it may do hurt. But when prudently used, it becomes a useful assistant in the cure of this obstinate disease. The warm or temperate season of the year should be chosen for out-door exercise; and warm dress should be enjoined with flannel next the flesh. If the patient feels relief from exercise, it should be persisted in; if he finds no relief, but inconvenience, it should be abandoned, and greater attention paid to the principal curative remedies. Exercise is better adapted to *finish* and confirm a cure, than to begin it.

h. Mucilages and demulcents. These are of some use to allay the local irritation in the throat, and possibly in the lungs. The patient may use such as are most agreeable, or that he finds most useful. Gum Arabic, gum tragacanth, liquorice, sugar plums, slippery elm, flaxseed tea, spermaceti, and others may be tried. They do but little good towards a cure, but have their use in being comfortable assistants.

If the patient should be troubled with a dry irritative cough, without expectoration, and attended with heat, he may receive relief by placing a mild steam in the bed, by

means of a tea-pot, or some other apparatus, so that a mild steam may be blended with the air he breathes. Emollient herbs may be infused in the liquor. Or take a new brick, and after moderately heating it, pour hot water upon it, and then cover it with a clean napkin, and lay it at an agreeable distance from his mouth, and in the bed; this will be very comfortable and convenient, and may be often repeated.

i. Sirups. Very much the same may be observed of these, as of the last articles. The above may be made into simple sirups, without spirit, except in the most exhausted and hopeless cases; when a little spirit may be added to make them more agreeable and cordial. It is very much doubted, whether any article of the materia medica possesses any specific power in affecting the lungs. Many seem to have such an effect by promoting diaphoresis, or by an emetic, or some other general operation. Many also by stimulating the larynx, esophagus, and stomach, promote a secretion in the bronchial vessels. It is also very much doubted whether any permanent good effect is produced by much stimulation of these parts. Stimulating sirups should be avoided in every stage of the disease. In the after stages, mild mucilaginous and moderately cordial sirups may be indulged; and from the comfort they give, the patient will often insist, that the sirup has been the means of his recovery.

The tincture of balsam of tolu makes an agreeable and useful sirup. One drachm of the tincture to half a pint of warm water, sweetened with loaf sugar, to which may be added about ten drops of the essence of peppermint. Also may be tried sirup of onions, and of turnip. Elecampane, comfrey, spikenard, colts foot, &c. may be used for these purposes.

Whilst speaking of cordial sirups, it becomes proper to say something of anodynes and other cordials, as they will no where be admitted in the list of curative remedies. After some experience of anodynes or opiates in this disease, and observing their hurtful tendency, I was surprised to see them recommended by so many writers of celebrity. Their effect is to suspend irritation, but not remove it. They give only a deceitful respite to the disease; and as in all other cases of suspended morbid action, it returns with force proportioned to the delay. The physician, willing to afford comfort and consolation to his patient, offers a medicine, that is taken with avidity; and from the circumstance of the necessity of its repetition being increased, it is pertinaciously persisted in. Our views of this drug, in febrile action, have been anticipated; it will only be observed in this place, that it is one of the most improper medicines that is usually exhibited in this disease. All the most salutary measures will become of no avail, in severe cases, if this article is used. After all hopes of recovery have vanished, it may be used in small quantities, especially to check diarrhœa. But who shall determine a case to be hopeless, when some have recovered from the most forlorn state?

The same, upon general principles, may be said of spirits, of wine, and other cordials. The hurtful effects of these will sooner be discovered, by attentive observation, than the effect of anodyne cordials. The bad effect of opium is not commonly shown until a day or two after its exhibition, and when taken in small doses, perhaps later; and when the symptoms of fever are aggravated by its use, it is commonly considered, that this is a neces-

sary consequence of the disease, rather than the effect of the opiate. In this manner, both the patient and physician are liable to be deceived, whilst the treacherous disease, and still more treacherous remedy, are securing the victory.

k. Stimulating plasters. These relieve pain and promote a determination to the surface. The burgundy pitch answers the purpose very well. Three or four may constantly be worn on some part of the thorax; one of them between the shoulders. They may occasionally be medicated with camphor and opium. A plaster on the hollow of each foot.

l. Digitalis. This is a useful assistant, but by no means answers the recommendation it has had from high authority. It seems to possess a property of assisting, in translating diseased action from the lungs; and diffusing it generally in the system; and, if I am not much mistaken, of increasing a determination to the head. In small doses it is a safe auxiliary; but a cure should never be entrusted to it. It is most useful in those cases attended with the least fever; or after the use of the more important remedies before mentioned. A saturated tincture may commonly be given in about forty or sixty drops two or three times a day. My custom lately has been, to give the evening dose along with the nauseating or emetic dose, before mentioned.

m. Salivation. In certain cases of long standing, and where the above remedies have been used sufficiently, and still the disease continues in a more moderate manner, this remedy may be used. It should not long be persisted in, and it should be used in the most sparing manner, and accompanied with diaphoretics, for the

purpose of exciting universal action in the lymphatic system. The glands of the throat should be affected only in the slightest manner. If the before mentioned curative means are properly applied, this remedy will be superseded, perhaps, in fourteen out of fifteen cases. If a suspicion should arise, that the disease may be connected with syphilis, from knowing the patient has been affected with it, the use of this remedy becomes more apparent.

n. Seneca. An infusion of this, to which may be added loaf sugar, may be very beneficial to excite the lymphatics. It will be most useful after some of the principal remedies have been used, and fever is abated. It may be taken about three times a day, as much as the stomach will bear without sickness.

o. Elecampane, sulphur, and liquorice, being pulverized and made into an electuary, with honey or molasses, agreeable to Mr. Townsend's directions, are often very useful for the cough. It may be taken various times in the day. It not being our design to be very particular, the minutiæ of the curative part must be abandoned.

If the art of healing could be communicated merely by describing a disease, and accompanying it with a set of recipes, the task of the practioner would be greatly diminished; the necessity of thought would be superseded, by a sort of mechanical impetus; and the abstruse science of physiology become a useless pursuit. Diseases would then be squared by the same rules, that the architect pursues in preparing and adapting the materials of an edifice. But the case is very different; every identical condition of disease has its own peculiarities, as correctly as every individual has his own

particular physiognomy. The rules of practice can only be general and common, or such as suit the predominating character of the disease under consideration; but the quantity of remedies must depend wholly upon the particular state of the individual case. On this view of the subject, not only every new case presents a wide field for animadversion, but every visit demands a review and circumspection of the case, and perhaps some deviation in particular remedies.

The art of medicinal practice not being an imitative art, sufficiently accounts for the failure of those, who in attempting to pursue the same line as others, are perhaps destitute of the landmarks and criterions, which alone can ensure success. Unfortunate attempts are often imputed to those general schemes of practice, which under a discriminative and judicious application would have proved successful.

Whatever may be the fate of these propositions and remarks, the writer is satisfied they contain, in short terms, the true principles of the disease; and that they lead to a successful method of cure, when well adapted, and discreetly applied. A considerable course of experience warrants the assertion, that this disease, although obstinate in its character, should no longer be considered *incurable* in its nature. The tardiness of the disease gives ample opportunity for the use of remedies, and whilst in possession of so many, capable of producing astonishing changes in the economy of the system, we may fairly conclude, that nine tenths of the failures of cure, should be imputed to the obstinacy of patients, or the delinquincy of physicians. This is upon the supposition, that common opportunity is offered. In the late

and adverse circumstances of cases, which are often met with, success can frequently be ensured, by a firm and steady perseverance on the part of the physician.

The truth of these remarks will be more apparent and better credited, when the generality of physicians shall have rid themselves of the asthenical foibles of the day, and become sufficiently apprized of the great necessity of suppressing morbid irritability, by an early subduction of internal stimuli; and also when it shall be more generally understood, that the system is capable of sustaining life, without injury to its primitive economy, under astonishing evacuations and abstraction of stimuli; and that disease diminishes in proportion to the reduction of morbid excitement. And furthermore, when it shall be more perfectly realized, that in proportion as morbid irritability is subdued, vitality is preserved from danger of exhaustion; and that debility is oftener the effect than the cause of disease.

When a physician is well established in the principles of treatment most proper to be pursued in this disease, he will often meet with much embarrassment from the fickleness of patients, and their unwillingness to submit to a severe regimen, when so many deceivers are promising them a safe and speedy cure with some agreeable remedy; either their own secret nostrums, or those puffed about in public advertisements, &c. containing, for the most part, some opiate preparation. They ought to be warned of the danger of their disease in plain terms; and from their constant proneness to skepticism, in this respect, they bear conversation on the subject better than in almost any other disease. They should frankly be warned of the danger of using temporizing remedies, and losing the most favourable period of relief.

Many doubts have rested on my mind, relative to the propriety of inserting cases of disease. It has at length prevailed, that it might be best to insert a few, merely to illustrate the principles advanced.

Case I. In 1799, E. B. previously of a tolerable healthy habit, but of that sort called hectical, aged about twenty-four years, was attacked in June, with pain in the region of the thorax, cough, and a pulse about 120. The access was moderate, and all the symptoms warranted the conclusion, that he was progressing into a consumption. I had not at that time the full confidence in the right method of cure, but was well established in the principle. In the course of a few weeks he was bled several times quite freely, and pursued an antiphlogistic course with blisters, setons, cupping, &c. I will here mention, that I have now but little confidence in setons nor local blood-letting, for it is a general disease, and requires general remedies.

By this treatment, he gained apparently but little benefit, for about one month; except in this circumstance, that the chief seat of pain seemed to move from the centre of the thorax to the lower and back part of the diaphragm, and about against the liver, occupying a space of about a hand's breadth on each side of the spine.

The same treatment was continued, when in about a fortnight, the pain was chiefly confined to the region of the kidneys, or the psoas muscles, and gave serious apprehension of a lumbar abscess, as the fever continued quite severe. In about a fortnight more, it was found to remove lower down in a slow progressive manner, until it arrived within the boundary of the sacrum and os coccygis; giving the sensation of being situated between these bones and the rectum. At this time, a consulting

physician concluded the case to be ascarides, irritating the rectum. In compliance with his request, lime-water was injected, and some acrid materials, which added much to his distress. At the same time, opium and other stimulants were given. In the course of a few days his fever was increased, and attended with delirium for about two weeks, so severe, that it required two or four men to keep him on the bed; and for several weeks, partial delirium.

He was now treated with more bleeding and antiphlogistic remedies; and after a few weeks an eruption began to appear in the anus, of a red fiery appearance, and spread gradually over the perinæum, and adjacent parts. The sensation this gave was almost intolerable. The skin became dry and cracked in all directions, and from the fissures issued an ichorous matter. The eruption continued its progress down the inside of the thighs to the lower end of the calf of the leg, healing behind as it made progress. It disappeared at this place after a continuance there of three weeks, when the fever and every symptom gradually vanished in about five months from the attack. I was knowing of his enjoying good health about ten years after, when he left the country.

I considered this a very singular species of disease, and have mentioned it more to show the translation of local affection, than to show the quantity of anti-febrile remedies; and also to make this remark, that it may be doubted whether the disease would have removed from the region of the lungs, if stimulants had been used at first. In confirmation of this, it may be noticed, that at the time it was within the region of the sacrum and coccygis, when stimulants were given, it tarried about twice the length of time it did at any other place. This

patient had no eruption before nor since that time, to my knowledge.

II. In 1804, W. F. was progressively attacked with the common symptoms of phthisis. His cough became at length to be almost incessant without any expectoration, and attended with hoarseness, difficult respiration, pain, quick pulse, &c. He had been some months in this situation, when he submitted to a strict regimen, with bleeding, emetics, &c. He was bled largely seven times in about two months, when the disease gradually gave way, and he resumed his usual employment, with only slight phthisical symptoms occasionally, until the first of August, 1811. After indisposition for several weeks, and whilst attending moderately to business, he was affected with constant pain and soreness in his breast, particularly under the sternum, and at length with spitting of blood frequently every day. His pulse at this time was very small, quick, and oppressed. It proved to be a very obstinate case; he had unequivocally in the course of his disease, all the appearances of a confirmed consumption. But by a diligent use of the aforementioned remedies, or a principal part of them, he has recovered his usual state of health, and attends to business. He passed the most critical period of his disease in about three months from the last date. He was bled largely fifteen times in this term of time, notwithstanding his emaciated appearance, and the smallness of pulse. His pulse, however, grew fuller after some of the first bleedings. He was bled three times in the course of two days in this term. After the above bleedings, he was bled three or four times in the course of the winter following. He enjoys very easy health at this time, January, 1815.

He is of a spare habit, rather inclining to paleness; and at the time blood was taken so profusely, his external appearance seemed to show, that he rather needed to have blood injected into his vessels, than any abstracted.

III. Miss E. R. aged about twenty. I first saw her in May, 1812. She had been affected with strong symptoms of phthisis pulmonalis for about a year. Had spent the preceding summer in Massachusetts, in pursuit of her health. At this time her pulse was about *one hundred and twenty* in a minute, and spitting of blood attended her almost every day, with very constant pain in the region of the thorax. Also her cough had been upon her for about a year. In the space of three months, she had eight large bleedings, and a proportion of other remedies. By this time, she had passed the most critical period of her disease, and became moderately convalescent. In the course of about four months more, she was bled three or four times, when her health appeared to be considerably established; and she has been entirely well to the present. She passed the most important period of her disease about the last of August, when she had three very large bleedings within one week. As I do not often specify the quantity of blood taken at a time, it may be observed that I am not very solicitous about this; but endeavour, when bleeding is necessary, to take sufficient to make some sensible change in the pulse. The three bleedings, just mentioned, were about twenty-four ounces each; rather larger than common. It may be worth noticing, that the following winter, the epidemic pneumonia prevailed; it was in the neighbourhood and family she lived in, she was not affected herself, but enjoyed good health.

This case was considered a victory over gainsayers, who made such opposition, that I felt myself necessitated to take a greater share of responsibility, than ever ought to be laid upon a physician.

IV. P. P. T. aged about six years; had, in former seasons been affected with fevers, but apparently of good habit. About the middle of January, 1814, was attacked with the symptoms of common fever. He was twice bled; and, with the help of other remedies, became convalescent. Again in the fore part of March, was attacked with fever and pain in his thorax with cough; also, at the same time, with pain in his ear and throat with some swelling. As the mumps were in the neighbourhood, it was considered he was affected. The affection of the throat subsided in a short time by one bleeding and the common treatment; and for three weeks he appeared to have but little fever. It was soon discovered that his case was clearly becoming hectical; attended with a dry cough. His pulse gradually became exceedingly quick, from one hundred and thirty to one hundred and sixty in a minute. By the 15th of April his sweats were very profuse, of that kind called colliquative; and his emaciation very great. His end was looked for from day to day. In this very low and emaciated state he was bled three times in about a week; attended with blisters, milk diet and digitalis. Every bleeding, which was pretty copious, considering his condition, manifestly gave relief from the fever, sweats and distress; at the same time his expectoration was increased by them and now became pretty large. The last of the three bleedings apparently gave the most relief from sweats, fever, &c. He took nothing more stimulating than a week sirup of balsam tolu.

By the first of May, he was considered clearly convalescent, and by the middle of the same month, appeared almost free from disease; but yet had not recovered his flesh and strength. The case ended in a few weeks more in perfect health.

Perhaps this case might be considered as approximating more to acute pneumonia, than more dilatory cases in adults. If so, the extreme state of exhaustion, with sweats, very small and quick pulse, &c. appeared equally forbidding the use of what are called debilitating remedies, as any condition whatever. At the same time, I never could feel so confident of success in the more protracted cases by this late treatment, as in the more recent ones. I am, however, in a condition to say, that I can produce cases in adults, who had laboured under the most manifest state of phthisis pulmonalis, for six and for twelve months, with great expectoration, and also emaciation, recovering by measures similar to the above. For this purpose will only be mentioned one living in this town, which will be put for the last, and,

Fifth Case. G. F. aged about 22. He had been declining with the most marked symptoms of phthisis for about six months before I saw him. His expectoration was great. In the course of less than three months, he was bled largely three times. Notwithstanding his extreme exhaustion, he was every time benefited by them. These and collateral measures so far abated the violence of his disease, that he gradually recovered from a state, in which his death was looked for from day to day for about six weeks, to be able to attend some to business; but is not yet free from a cough and expecto-

ration. This case was in 1804. Every year has bettered his condition.

It will only now be observed, that I have no recollection of ever meeting a case, that any injury has been incurred, by the use of blood-letting, to my understanding. A few very late cases have gone wrong, with some blood-letting, and a partial use of the proper curative remedies; and this must always be expected.

I have no intention to say, that every case of this formidable disease, can be cured even in the most favourable state of trial. A belief, however, is entertained, all circumstances of application being equal, that this condition of disease is as much, and even more, under the control of remedies, as simple pleurisy. The application of remedies should perseveringly be persisted in, for the cure of phthisis, in proportion as the disease is more protracted, and obstinate.

At the time I first began to turn my attention to medicine, a crimsoned cheek, a pulse a little quickened, with transient pain in the side, with slight cough, were frequently considered fatal prognostics; and I have heard some undertake, with much confidence, to fix the period of life, perhaps a year hence, even when the patient was but little indisposed, and was not enough alarmed to seek for assistance. It is to be hoped the age of prognosticating chivalry is passing by, and that physicians are becoming more ambitious to remove the hitherto supposed incurable diseases, than solicitous to secure their own doubtful fame by a fatal prediction.

The unexpected recoveries in severe cases of acute and chronic diseases have been so numerous, it ought to teach us, that no one knoweth the period of existence,

save He who gave it. We ought also to be instructed, that some diseases, which are called incurable may not in reality be such, but stand as monuments of reproach to the negligence and ignorance of the Faculty.

If the pursuits of physicians had been well directed, we have reason to think, that the disgraceful epithet of *ars conjecturalis*, as applied to medicine, would have been hid in oblivion ages ago, in the land of our forefathers. If instead of seeking some peculiar plant, some spicy root, or some favoured flower, at the foot of some renowned mountain, possessing some specific power, the labour of physicians had been bestowed upon physiological fitness and nosological derangements, with observations upon changes made by simple curative materials at hand; then, instead of the term of existence diminishing with passing years, the age of man, in obedience, might have approximated his pristine longevity.

How far the labour of the writer has accomplished his wishes to effect usefulness by these sketches, must be left for others to judge; if they contain no merit, they will be equal to some that have gone before, and will be consigned to that land of forgetfulness, where bodily infirmities teach he may soon follow.

THE END.